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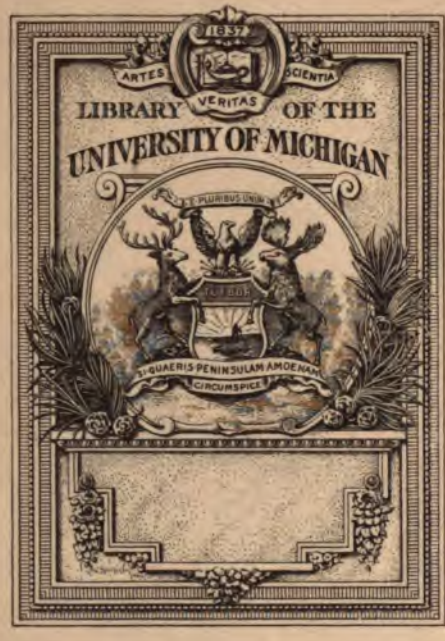
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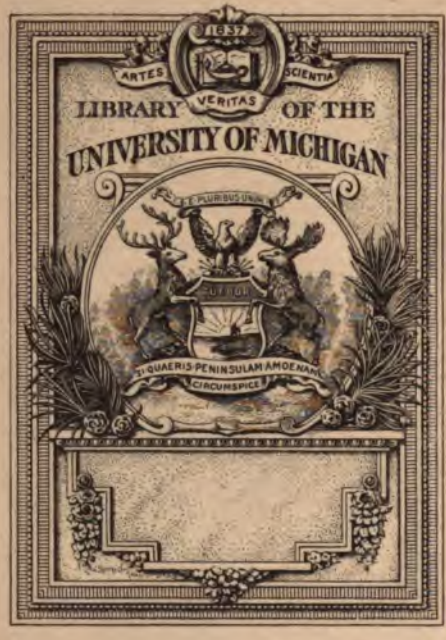
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THE

RETROSPECT

OF

PRACTICAL MEDICINE AND SURGERY,

BEING

A Half-Yearly Journal,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE,

LECTURER ON OBSTETRIC MEDICINE AT THE LEEDS SCHOOL OF MEDICINE, ETC.

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PRACTICAL MEDICINE,

&c. &c.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. 1.—ON FEVER.

By Dr. E. A. PARKES, Professor of Clinical Medicine in University College, and Physician to University College Hospital.

[If the chemistry of fever has its difficulties and obscurities, the physics of fever are still more dark and unintelligible. The alterations in molecular movement, and in nervous currents, will be but dimly understood long after the chemical problems have been perfectly comprehended; and yet these are the most essential phenomena, to which the chemical changes are merely sequences. "Fever is a blood disease," but]

We can no longer rest satisfied with localizing fever even in the blood; true the blood is affected, but it is in common with all other parts of the body; its molecular currents undergo alterations, but so do those of all organs; perhaps everywhere in fever the nutritive changes are impaired, and perhaps every organ is both more rapidly changed than usual and is less perfectly repaired. Such is the harmony of the parts of the body that this is indeed inevitable; the rapid interchanges of the molecular circulation either in the blood or in organs, render it impossible that any disease shall remain isolated. As to the correct working of one organ, the correct working of all other organs is necessary, a disease of the blood as a thing separate and peculiar is evidently impossible; from that blood torrents of fluid pass in inconceivable rapidity into all organs, and as rapidly are again gathered up. What was solid is now fluid; what is now fluid is speedily to become, if not solid, yet a constituent of what we call a solid organ. Into that organ the altered fluid carries its own imperfect constitution, and injures at once the function of the structure of which for the time it forms a part.

Yet the blood is affected in fever, in fact, must be affected in fever, and the problems which are now presented to scientific medicine are these: What are the exact changes of the blood and organs in pyrexia, and at what period of the disease do these changes occur? In my last lecture, I alluded to the very small number of facts which have as yet been acquired on the constitution of the blood and organs, although there is no reason to doubt that, as our means of investigation enlarge, the question will eventually receive a full reply. I leave this subject, then, to turn to the second problem, viz., As to the period when the blood becomes affected in fever.

A favourite opinion refers the origin of fever to primary disease of the blood.

In almost all the specific diseases, in small-pox, scarlatina, measles, typhus, typhoid fever, relapsing fever, and yellow fever, a fever-making cause appears to enter the blood; at least, it can be proved to enter in several cases, and a strong analogical argument can be proved of its entrance into the rest. The fever-making agent also reproduces itself in the blood, or in some organs. This can accrue only through a direct chemical process of some sort. In the case of other fevers, also material agents, septic substances can be traced into the blood, as in the fever following parturition, *wounds*, operations, and purulent formations. In many inflammations, *&c., in whatever* way they originate, some previous diseased

state of the blood can often be proved, or the inflamed part produces products. which are manifestly absorbed into the circulation. In fact, this part of the argument scarcely needs discussion, as it is generally admitted that, in almost every case, if not in all, the first action of the febrile cause is on the blood. At a later period, the blood may be supposed to be again secondarily contaminated by the stream of abnormal matters which flow from the organs into it under the rapid disintegration of almost all tissues in pyrexia, or of some special tissues in local inflammation. Then, as already argued in a former lecture, it would appear that, if not got rid of by the excretory organs, the thus contaminated blood produces secondary inflammation, or lights up a fresh pyrexia.

But is this a full expression of the sequence of phenomena? Does the blood, diseased from the poison of small-pox, and, therefore, supplying to the various organs a fluid altered, it may be, in essential conditions, throw the molecular currents, and the interstitial metamorphoses of these organs, into disorder, and thus produce the wide disturbances which characterize the developed fever?

It may be so, and future chemistry may point out exactly how the variolous poison acts thus on the blood, and through the blood on other parts. But it seems probable that this does not express all the phenomena, but that, between the primary alteration in the blood and the altered and increased metamorphosis of the so-called solid tissues, there accrues another essential stage,—a connecting bridge, an intermediate and necessary link, which consists in a profound alteration in the action of some part of the nervous system.

And this brings me to the concluding paragraph of the definition of fever, which I have taken from the masterly pages of Virchow, and which I shall beg leave once more to note.

"Fever," says Virchow, "consists essentially in elevation of the temperature, which must arise from increased tissue-change, and have its immediate cause in changes of the nervous system."

Why "must have?" Is it so certain that the very basis of the febrile state is to be located in the nerves, and are all the phenomena of fever to be comprehended in the concise, though vague phrase, of "perverted elimination?"

We enter here upon a very different kind of argument from that to which I have hitherto referred. If many things are obscure in the chemistry of the excretions or of the blood, we yet have a definite, and up to a certain point, an accurate mode of investigation. Chemical analysis isolates the elements of the problem, and the balance at every step corrects our inferences, or confirms our deductions. But in the case of the nervous system there are no such certain tests, there is no such infallible corrective. The mode of investigation is vague, uncertain, unsatisfactory.

The tests we have to employ are the symptoms of the diseased body, and the only corrective is our physiological knowledge of the healthy working of the nerves. But the meaning of symptoms is often hard to understand, and the physiology of the nerves is yet almost a virgin soil, bearing often only enigmatical fruit.

The time will come when the alterations in the nerves may be tested during life, and be recognized after death, by the electrical multiplicator; it may be possibly by muco-chemistry. But till that time arrives it becomes us to advance everything with caution, and to regard even our apparently most certain conclusions as only provisional.

And yet, at the same time, if we are ever thoroughly to comprehend disease, the condition of the nervous system must be understood. The part it plays in every malady is no insignificant one. It modifies, controls, intensifies, cures and kills. The blood itself does not so quickly carry to other structures the impression of the suffering part, and the old doctrine of sympathies has its side of truth. We must then search, if we are ever to advance, and conjecture, if certainty is ever to be attained.

The arguments which can be now brought forward to prove the influence of the nerves in febrile affections impress different minds with different degrees of force. Altogether, however, it would seem, if we may judge both from the older and recent writers, that the essential participation of the nervous system is now *doubted by few*, and the chief subject of debate is the extent and manner of this *participation. Few of the masters* of our profession have left the subject untouched,

and it would be curious and interesting to review the various opinions and hypotheses which have been advanced. This cannot, however, now be done, and I must proceed to a very brief statement of the various reasons which seem to show at any rate that the nerves are greatly affected, and perhaps to bear out Virchow's statement that this affection is the cause of the other more obvious symptoms.

The most striking phenomena of fever are the augmented metamorphosis and the preternatural heat. Now, over normal metamorphosis and normal heat, the nervous system seems to rule paramount. The influence of the nerves on heat, as developed in muscular action, has been shown by Helmholtz; their regulating power over secretion, has been proved by Ludwig; their control over nutritive processes has, if the experiments of Axmann are to be trusted, been at last experimentally established. At the very first step we have at once this question—Is it likely that the system which plays so great a part in normal heat, secretion, and nutrition, is inoperative and inert when all these processes are deranged?

To this question a partial answer is given at once by the beautiful experiment of Bernard, which has conclusively shown that artificial disease of the nerves at any rate will alter both tissue-change and normal heat. It would appear as if the tissues at once began to suffer oxidation; as if, in fact, it were the nervous power which had previously prevented from destruction. The older and recent experiments in section of the nerves show the same fact. Thus, when, by section or extirpation, the controlling effect of the sympathetic in the neck is taken away, there occur at once hyperæmia and local development of heat, far exceeding the heat of the blood, in the parts not deprived of nervous influence. By the side of these physiological arguments we can place others derived from the early symptoms of fever, which seem inexplicable unless the participation of the nerves is admitted; and to these again we can add more or less cogent evidence afforded during the course and at the termination of these diseases.

Among the very earliest symptoms of febrile affections are the remarkable depression, apathy, exhaustion, and debility which were much and justly insisted on by Cullen. It is indeed possible that these may be the effects of a general nutritive failure, in which the nervous system merely participates in an equal, but in no higher a degree, than other parts. If there were no other evidence of nervous affection, this argument might be a good one, although the nervous symptoms are certainly unusually prominent; but these acquire significance from being placed in juxtaposition with others.

Another very early symptom of fever is one which seems to indicate most decidedly a more than simple co-affection of the nervous system with other parts. I allude, of course, to the shiverings, the contraction of the superficial vessels, and of the skin. At this time, if not before, the tissue metamorphosis is most decidedly augmenting, for the heat of the blood is rising, as shown by these observations. We have at this time the remarkable subjective sensation of cold, and the rigors, which stand in such striking contrast to the augmenting heat. The explanation of this has been already alluded to, as being given probably by the nerves of the skin and cutaneous vessels, which transmit to the sensorium the condition of the peripheral parts. If this be the case, we have the anomaly, pointed out by some German writer—Henle, I think—of the impressions of cold being transmitted from distant nerves along the trunks of nerves, which, lying deeply, and being fed by vessels which are not contracted, must be hotter than usual, although they thus transmit the sensation of cold.

Another very early symptom of fever finds its readiest, perhaps its only, explanation in some condition of the nerves. I refer to the increased rapidity of the heart's action, and the relaxation of the vessels which soon follows the stage of contraction just referred to, or occurs without it. The increased cardiac action occurring at too early a period to permit us to refer it to altered nutrition of the fibres, or to action of the depraved blood in the endocardium, and reflex action, the hypothesis which refers it to a diseased condition of the vagus is much more probable than either of these propositions, for the vagus is the nerve which regulates the cardiac movements. The experiment of Weber seems to strengthen this supposition, for section of the vagus quickens at once the action of the heart, and the transmission of electrical currents, the nearest approach to the normal currents which we *possess, at once lessens again* the action. Volkmann again finds that

section of the vagus produces an increased lateral pressure in the vessels. Therefore two of the most striking phenomena of fever, the increased cardiac action and the relaxation of the vessels, can be artificially produced at will, by interfering with the nervous currents.

The affection of the vagus had appeared to some so certain, that it has been attempted to prove it to be the essential and proper disease, from which all other febrile symptoms arise. Thus the heart's action being quickened, and the vessels being relaxed, increased circulation, general hyperæmia and preternatural heat would seem to be the necessary consequences. But this opinion does not bear examination; for there are cases of fever without quickened circulation, and when there is quickened circulation, it bears no relation whatever to the abnormal heat. On this point much evidence has been published, and I have myself accumulated proof upon proof, which I think it unnecessary to adduce here, that the quickened circulation in various febrile diseases, and the dilatation of the vascular system, as far as this can be judged of by the pulse, are entirely unconnected with, and independent of, febrile heat. And a physiological argument seems to settle the question that, besides hyperæmia, there must be increased tissue-change to account for the heat; for in Bernard's experiment, the heat of the side of the heart which was deprived of nervous influence was greater than that of the blood; and though there was enormous hyperæmia, this, by itself, could never raise the heat above the temperature of the blood at large.

The occasional absence of the increased cardiac action shows that, when it does occur, it is not owing to diseased blood, for this must exist in all cases; and this is an argument the more for locating the cause in the vagus.

Another very early symptom of fever seems to find its most reasonable explanation in implication of the vagi. I refer to congestion of the lungs, which is so common in almost all febrile diseases as to oblige us rather to connect it with the general febrile state than with any specific disease. It has been lately shown by Woilley, that, at the commencement of all acute diseases, in typhoid and rheumatic fever, in ague in some cases, in variola, in scarlatina, measles, and erysipelas, in acute inflammations of the heart, congestion of the lungs is so common, that it is discovered in 80·5 per cent., and is announced by unequivocal physical signs.

The pulmonary congestion of the later period in most of these diseases in various degrees is a fact which has been long known. To what, now, is this pulmonary congestion to be referred? To altered blood refusing to pass through the pulmonary capillaries, to perverted contraction of those capillaries, or to some alteration in the circulation consequent upon altered innervation? It must be confessed that we have few facts to guide us; but when we remember that section of the vagi produces (of course in a still higher degree) the same condition of congestion and œdema of the lungs, and that there is reason to believe, from the condition of the heart, that the regulating nervous currents of the vagi are altered, it seems most reasonable to refer the pulmonary congestion to the same cause as the augmented cardiac action.

It may be possible, as observed by Virchow, to trace the effect of alteration of the pneumogastrics, or of the nerves connected with them, still further, even to the digestive organs, and to ascribe some of the early symptoms of anorexia and nausea to this cause, but it is unnecessary to push this argument further.

Pushing now the fever into its developed period, we have a remarkable and very frequent phenomenon, viz., the evident periodicity which attends many cases, which can be accounted for only by acknowledging not merely that the nerves are implicated, but that this affection is of that kind which subordinates and controls the other symptoms of the case. The symptoms in ague, and the wonderful periodicity which was shown by the late Dr. Graves to govern even the remote outbreaks of attacks, are the most striking examples; but the course of all the febrile affections and even of the acute inflammations indicates the same thing.

I shall not venture, and do not further allude here to the subject of critical days; for it would require more time than could be given me to do justice to it; *but I must* remark that the experiments of Traube, and others, prove that this *ancient doctrine must not be* thrown aside, as an hypothesis born from the old

mystery of numbers, or as a mere dream springing from the wild imagination of the East, and imported into Greece. There is much, though it is not easy to say how much, truth in critical days; and, if so, the nerves must surely play the principal part in their production.

Again, in the course of fevers, the secretions are very much altered in quantity, and possibly, though of this we know nothing, in quality. Now, the nervous system certainly guides and controls the flow of secretion.

Then, passing from the course to the end of fevers, we may observe that the occasional sudden termination in some cases, and the way in which some fevers, as ague, are readily cured by a few grains of medicine, which can scarcely be supposed to alter the constitution of the blood, but the action of which on the nerves is shown by other facts, are again arguments that, in these cases, the febrile symptoms are under nervous control.

I must allude here to one most enigmatical mode of termination of fever, which possibly may be connected with the nerves. It is well known that in most severe fevers there occur instances in which patients die in the early stage, from an unknown cause. It is usually said that the pyrexia itself kills them, independent, as it were, of the specific disease. In such cases, no sufficient anatomical condition is found to account for death. In fact, the various chemical products, which, acting on different tissues, constitute the anatomical signs of the specific fevers, are not formed: there is fatal small-pox, or scarlatina, without eruption, fatal typhus without a rash, fatal typhoid fever with very slight Reyerian deposit. How, then, do such patients die? It may be that there is some alteration in the blood, so profound as to render life impossible; and, in proof of this, it appears that purpuric spots, blebs filled with bloody serum from dissolved red particles, weeping of such red fluid from mucous surfaces, and such like evidence of a destroyed blood, are generally seen in these cases.

But, besides this, may it not be that in these cases there is profound nervous lesion also? There is extraordinary prostration, a galloping and early-failing pulse, and an excessively rapid respiration, to account for which there is only pulmonary congestion. The mind, it is true, may be perfectly clear in these cases; but that only proves that one special part of the nervous system is untouched.

Leaving, however, this doubtful point, the results of the argument in proof of the implication of the nerves may be thus summed up. These are: 1. The general physiological law that nerves regulate the metamorphosis of tissue and the production of heat, which are both altered in fevers; 2. Experiments on the sympathetic and the vagus, the results of which simulate, so to speak, or are identical with, the febrile phenomena; 3. Various symptoms which announce, accompany, or terminate fevers; 4. The effects of certain remedies.

Whether these various arguments will appear sufficient to any one will, I think, very much depend upon the weight which he attaches to the physiological and the experimental part of the argument. Those who are imbued with a sense of the constant and necessary action of the nerves on nutrition will find their opinions give strength to the otherwise comparatively weak arguments which are drawn from the symptoms and the course of fevers.

Against the view that the nerves are especially and essentially implicated we have the argument that no decided experimental proof has yet been given of abnormal innovation; but then, in the present state of physics and micro-chemistry, this argument is really worth little.

If there be perverted innervation as a necessary part of fever, in what does it consist?

Two opinions only need be noticed; one advanced some years ago by Henle, that there is irritation of the nerves, the other of more recent date, and founded upon recent experiments, that there is partial paralysis of the nerves, or rather of certain of the nerves.

In favour of this last opinion we have the following facts:—

Wherever, in experiments on nerves, the phenomena are like those of fever, viz., augmented circulation, relaxation of vessels, perverted nutrition, and abnormal heat, the state is one in which the nerve-currents are interrupted either by extirpation, section, ligature, or chemical destruction of the nerves. On the other hand, irritation of nerves by *electrical currents* produces phenomena different from those of

fever. Thus the vagus is cut, the heart beats rapidly; when the cut vagus is irritated (so to speak) by galvanism the heart beats again slowly; when the sympathetic of the neck is cut the vessels of the side of the head enlarge, the part grows hot; when a galvanic stream is passed through the nerve, as in Dr. Waller's interesting experiment, the vessels contract, and the heat disappears.

Other experiments, as already said, lead us to infer that section of the sympathetic or of other nerves connected with nutrition is always followed by disintegration of tissue, and perhaps even by final death of the part.

Coupling these facts with the early symptoms of prostration and languor, we may conclude that the state of the nerves is one rather of exhaustion and paralysis, than of irritation and excitement.

We are now in a position to enumerate the various influences which seem to be active in fever, and by the combined effect of which its complex phenomena may be supposed to be produced.

First of all, we must place the entrance into the blood of a morbific agent, and the alteration of the blood, to a certain extent, under its influence. Perhaps this occurs under the incubative period, when often there is no rise of temperature, no fever, that is, and when no appreciable alteration of the general health can be discovered. The nature of the change in the blood is unknown.

Then, secondly, when the change in the blood has reached a certain point, the nervous system, or rather that part especially connected with nutrition and organic contractility, begins to suffer changes in composition, which probably impede or destroy the normal molecular currents. When this occurs, the nervous symptoms of weakness, depression, rigors, and contraction of some parts and vessels, speedily followed by relaxation, mark the stage of invasion.

Thirdly, and simultaneously, various parts, especially the muscles, and probably some of the organs, deprived in greater or less degree of nervous influence, begin rapidly to disintegrate, and by their disintegration produce supernatural heat.

Fourthly. This metamorphosis is aided, in most cases, by the condition of the vagus and vasi-motor nerves, which cause increased action of the heart and dilatation of the vessels.

Fifthly. The contamination of the blood already produced by the morbid agent, is increased by the check which the normal extravascular currents experience, by the pouring into the blood of the rapidly disintegrating tissues, and by the continued action of the morbid agent, which in almost all cases appears to act more rapidly and more powerfully in blood rendered impure in any way, either as shown by Dr. Carpenter by retention of excretions, absorption of septic substances, or, as in fever, by the too rapid metamorphosis of tissue.

Sixthly. The various organs suffer (apart altogether from specific changes), and must, one would think, produce increased deterioration of the blood. Thus the lungs are congested in so many cases that we can scarcely suppose proper aeration to go on; the liver would seem, from Frerichs' observations, to be, in some cases at any rate, in a most abnormal condition, and to produce compounds such as leucin, unknown in health—and the spleen in many fevers, if not in all, enlarges, (in persons of a certain age,) and is congested, possibly even to extravasation.

But to these complex conditions another must yet be added; food is almost entirely withdrawn, and the various alkaline and neutral salts, unless supplied in the form of medicines, no longer pass into the system. But as in the excretions these salts are continually passing out, and are not restored, there must at last in fevers be a most unusual disproportion between the organic and the inorganic constituents of the frame. The blood will show this the latest, for it seems to maintain its composition, as far as the salts are concerned, with great tenacity; and it probably takes from the organs the ingredients it loses by the excretions. The exact influence of this loss of salts is not certain. The blood seems certainly to become less alkaline, and it is by no means improbable that this may render oxidation less complete than it should be, and thus cause some of those instances of retention of effete materials to which I have formerly referred.

Thus the blood is contaminated by primary action of the agent, by the products of metamorphosis of tissue, by the loss of the salts, and by the altered action of *organs; the nervous* system is, therefore, day by day constantly more affected, and

re-acts still more on metamorphosis, the heat increases, the heart's action still quickens, and the fever reaches its acme.

The various specific differences which mark the course of every fever, are not, of course, dealt with by this hypothesis, which looks only to the general symptoms of pyrexia.

The fever having reached its highest point, and being there maintained for a greater or less number of days, according to the nature of the cause, and partly, also, according to the condition of the recipient, then declines, and reaches its termination.

Pyrexia is usually said to terminate by crisis and by lysis; in the former case, the temperature falls suddenly in a few hours, and usually with some abundant excretory discharge, in which possibly much of the water which has been retained is poured out; in the latter case, the fall of temperature is gradual from day to day, till the normal standard is reached. A third mode of termination is a mixture of these two modes, viz., a sudden fall in temperature to a certain point, and then a gradual decrease to the normal heat. In the termination by lysis, the decline may occupy many days. In the case even of simple febricula, I have known the thermometer to take seven days in falling gradually from 102° to 98°, sometimes it is longer even than this.

But, besides these three modes, it appears to me that there is a fourth mode of termination. This is seen, I think, most perfectly toward the end of long-continued fevers, such as typhoid, and consists in a somewhat irregular alternation of febrile and non-febrile periods, which is shown both by the temperature and the issue. Thus a typhoid patient, at the thirtieth day, may have a normal temperature, and may pass a normal amount of tolerably healthy urine; for the next day or two the temperature may again rise, and the urine decrease in quantity, and increase in pigment; then, for a day or two, a perfectly apyrectic state may come on, to be succeeded again, at an uncertain interval, by a febrile condition; gradually the non-febrile periods lengthen, and the febrile become shorter and less marked.

At length the fever terminates, and then commences the period of convalescence and renewed nutrition, and the body at once, according to the observations of Zimmermann, commences to gain weight. At this time the blood is poor in albumen and in red particles, and especially in the latter; it is frequently poor in salts, if these have not been supplied by the medicines. The rapidity of metamorphosis of organs falls below even the healthy standard; this is shown by the temperature,—which is often lower than normal, especially if the patients are kept for any time without food,—and by the urinary excretions; for, in spite of the greater supply of food, the urea, the uric acid, the colouring matter, the extractine, the sulphates and the phosphates, all fall below, not their febrile standard merely, but their healthy amount.

The different organs and tissues, in fact, are appropriating a greater amount of nutritive material (probably of oxygen as well as food) than they lose by disintegration, and the weight of the whole body is often augmented in an extraordinarily rapid degree. The normal balance between formation and destruction of tissue is as much disturbed in this state as in fever itself, only the condition is exactly the reverse. This state of increased assimilating power, on the parts of the tissues, may last far beyond the period usually considered as belonging to convalescence, and the weight of the patient may, indeed, exceed considerably that proper to him before his illness, and that to which he subsequently reverts.

I have already stated, that the diminished elimination during the period of convalescence, is often well marked in the urine. Although there are not, as far as I know, any observations on the point, it is probable that the elimination of carbonic acid by the lungs is also decreased, and that the rapid and unusual deposit of fat in the various parts of the body which frequently follows fevers of all kinds, is to be attributed to this.

If the increased tissue metamorphosis in the febrile period is to be referred to some change in the nerves, so also is the diminished metamorphosis in the convalescent stage. In both conditions the nerves may be supposed to have lost their moderating and regulating power, although their state must be very different in the two cases. If there *is paralysis in the* one case, we must suppose there is

some sort of irritation in the other, or the reverse. But such speculations, in the absence of any real knowledge, are of little use.

The diminished elimination during convalescence which I have referred to does not always occur; it is absent in slight cases; and the investigations on the urine are not sufficiently numerous to enable us to state that it is present even in all severe cases; but that it is a general rule in long-continued and severe cases cannot, I think, be doubted.

The treatment of pyrexia becomes much more comprehensible if we accept the doctrine of nervous paralysis. We then understand how measures which reduce the febrile heat, such as bloodletting, purgatives, &c., may, if carried to excess, do harm, by exhausting the nerves still more, and how various remedies may do good by acting at once on the nerves.

The *treatment* of fever may be summed up as being a combination of measures *to reduce excessive heat, to ensure proper excretion*, and *to act on the semi-paralyzed nerves.*

The application of cold, as practised by Currie, and lately re-investigated by Traube and Armitage, has a great effect in bringing down the temperature of the body. It probably does so simply by abstracting heat; whether it delays metamorphosis is uncertain. In health the application of cold appears from Lehmann's experiments even to increase metamorphosis.

Bloodletting or hemorrhage often reduces the febrile heat greatly, and, if not carried to the point of exhausting the nerves, bloodletting in many fevers towards the early period, is decidedly useful. In typhoid fever I have seen intestinal hemorrhage reduce the temperature several degrees, and when patients are not too weak, it has even appeared to do good. In typhus the paralysis of the nerves seems more marked than in typhoid, and bloodletting and similar measures seem less admissible.

Purgatives and emetics have, in less degree, the same effect as bloodletting. Artificial diarrhœa will reduce the temperature one or two degrees; the spontaneous diarrhœa of typhoid has the same effect; the temperature, however, soon rises again.

To insure proper excretion in fevers is a much more difficult thing than to reduce temperature. It is, perhaps, best performed by constantly supplying to the system a due supply of alkaline salts, which are not now given in the food. The chloride of sodium, we know from the experiments of Bischoff, aids the formation and the elimination of urea. Whether it has the same effect in fevers has yet to be determined. The alkaline salts of potash, and probably those of soda, do certainly aid the elimination of urea and sulphuric acid in some febrile cases, in pneumonia, rheumatism, variola, and typhoid fever. Perhaps they so act in all cases. The nitrate of potash seems also to aid elimination in some febrile cases, though it does not necessarily do so in health.

I have observed a singular fact in several febrile diseases, viz.: that, at the first employment of a saline remedy, such as nitrate of potash, which is not a natural constituent of the frame, or iodide of potassium, there is sometimes for a day or two a marked lessening of excretion, as if the presence of this foreign substance had interfered for the time with the chemical processes then going on; afterwards elimination increases, as if the system had accommodated itself, so to speak, to the remedy.

Purgatives probably act by removing from the blood some of those abnormal products which are formed in fevers. At any rate the great relief which follows their use, as well as the fall of temperature, seem to show this. As we know that urea passes off sometimes, both by the membrane of the stomach and of the intestines, it does not seem an unlikely conjecture, that the action of purgatives may aid this elimination in those febrile cases in which there is retention of this substance in the blood. In some febrile cases, as in typhoid, the use of purgatives is of course rendered impossible, on account of the special condition of the iliac mucous membrane. The whole treatment of fever is not, however, summed up in these two indications, to reduce heat and to secure elimination. Many fevers, indeed, will run their course regularly and excellently under such treatment; but these are cases in which the nervous implication is not of grave character.

One of the great objects of therapeutics at the present time is to find substances

which may act on the nerves, and restore them in some way to their normal action.

Thus, the administration of food, and of stimulants, must act, among other ways, by giving nutriment and strength to the nerves. Often it is perfectly good practice to stimulate with wine, and to assist elimination by purgatives, at the same time. That alcohol acts in part upon the nerves seems proved by the way in which it will reduce the frequent pulse, and the respirations in various specific fevers, and in some local inflammations. The influence of this powerful stimulant requires, however, to be carefully watched; for the overloading the blood with its products must lead to increased contamination.

Quinine has been largely employed in many fevers, and its action in ague, in which disease it seems to render the nerves proof, to a certain extent, against the cause, has excited great hopes of its utility in other fevers. The researches of Briquet have clearly proved that in very large doses (60 grains to twenty-four hours,) it will reduce the action of the heart in acute rheumatism, and in typhoid fever by twenty to thirty beats. This must decidedly be useful, since one of the accessory causes of the augmented metamorphosis must be removed; and to this effect is, perhaps, to be ascribed the good effects of quinine noted by Dr. Dundas in some febrile cases. But these large doses have apparently a disadvantage, as they produce the poisonous effects of quinine.

The influence of quinine on the febrile heat is not much marked; in large doses it lowers temperature by one or two degrees, but it afterwards augments again.

In small doses such as are given in this country, (grs. iii. to v. every four or six hours,) for myself, I have not been able to see any effect produced on the heart or the temperature. In one case of rheumatic fever I examined the urine, and found that quinine in these doses caused no diminution of metamorphosis.

Digitalis, according to the experiments of Traube, produces the most marked effect on the temperature of any medicine, and its influence on the heart is well known. Whether or not it increases elimination in febrile cases, is even now not accurately determined, although for so many years it has been celebrated as a diuretic in chronic diseases.

Veratrine has been lately employed in various fevers, especially in acute rheumatism: it reduces the action of the heart, and apparently the febrile heat; but its poisonous properties are so powerful that it is not likely to come into general use.

The effect of ammonia is often very well marked in the latter stages of fever, when the heart's action is very rapid from apparently great paralysis of the vagus. Its effect on elimination is not well known.

Much attention has been lately directed to the powerful effects of coffee, and of tea, and of cocoa, especially of coffee, in lessening the elimination of urea. The late observations of Dr. Julius Lehmann have shown that coffee, in health, has two powerful actions; it increases the nervous energy, and protracts the metamorphosis of tissue. He thinks there are antagonistic effects, but they may possibly be simply cause and effect. Lehmann only determined the urea and the phosphoric acid, which he found both diminish.

It would be very interesting to know if coffee has the same effect in the febrile body as in health.

I have made one experiment on the point, and I think none has yet been made known as having been performed by others. Although my observation is incomplete, I shall venture to give it.

In a case of typhoid fever, which was so far favourable for the remedy as, though perfectly well marked, there was no diarrhœa or sweating, coffee was administered. During twenty-four hours the patient took ℥ vj. of infusion of colonial coffee (of course without sugar or milk.) The coffee contains 207·888 grains of solid matter; there were only traces of chlorine; there were 1·738 grains of phosphoric, and 1·055 grains of sulphuric acid in the whole quantity.

In the next twenty-four hours he took another ℥ vj. of coffee, containing 197·328 grains of solids. In the third twenty-four hours, ℥ vj. of coffee were given, which contained only 34·89 grains of solids.

Unfortunately before the experiment could be commenced, the temperature was

beginning to decline, and the urea, the sulphuric, and the phosphoric acids of the urine were gradually diminishing.

Thus, for three days during the height of the fever, about the 18th or 20th day, the urea amounted to 429 grains in each twenty-four hours; the sulphuric acid amounted to 28·537 grains, and the phosphoric acid to 19·275 grains. On the following days, before the coffee was given, the fever was declining, the urea fell to 326·04 grains, viz. 103 grains less; the sulphuric acid fell to 23·34 grains, or 5 grains less; the phosphoric acid fell to 17·446, or two grains less.

The coffee was then given, the diet and all other circumstances being unaltered. During the three days it was taken, and on the following day over which its action may be presumed to extend, the urea averaged in each twenty-four hours 277·04 grains; the sulphuric acid averaged 16·502 grains, and the phosphoric acid amounted to 9·227 grains. It thus appears that the lessened amount of urea was not more during the use of coffee, than could be accounted for by the decline in the fever; but the fall in the sulphuric, and especially in the phosphoric acid, was extraordinary; deducting the grain of sulphuric acid added in the coffee, the amount of the acid was 15½ grains as against 28½ and 23½; the phosphoric acid did not exceed 8 grains as against 19 and 17.

After the coffee was left off the urea and sulphuric acid soon increased again; the phosphoric acid fell still more the next day (to 5·5 grains) and then increased again.

There appeared to be no modifying circumstances to interfere with the action of the coffee, and though the effect on the urea was not certain, yet, as it increased again when the coffee was taken away, and as the sulphuric acid was so diminished, it is probable that metamorphosis was checked. The lessened phosphoric might depend on lessened amount of disintegration of the nervous tissue.

Certainly there seems good reason to try the effect of coffee in severe cases of fever with delirium and rapid wasting.

Since this lecture was delivered I have had the opportunity of trying it in a very severe and ultimately fatal case (from perforation). The urea did not appear to be diminished.—*Med. Times and Gazette, June* 2, *p.* 535, *and June* 9, 1855, *p.* 561.

2.—ON FEVER.

By Dr. Samuel Wilks.

[The researches of Dr. Parkes on this subject, and his investigations into the functions of the various organs during the febrile state, have been productive of very important facts. With respect to the state of respiration, Dr. Wilks says,]

My own observations (published elsewhere) showed that in all febrile diseases the number of respirations was increased, (care being taken always to exclude those instances where there was the slightest symptom of pulmonary complication or obstruction), and this increase was quite irrespective of the pulsations of the heart. For although the action of the heart and lungs is no doubt, to a certain extent, associated, and the amount of work done by one organ is a measure of that done by the other; as, for example, when each is increased during any violent exertion; yet this is by no means invariably the case. There are times, undoubtedly, when the blood, containing more effete matter than it does at others, requires for its purification an increased action of the lungs, and yet the number of cardiac contractions may be of the ordinary amount. I believe this occurs in fever, and accounts for the phenomena which are observed—the constant dissociated action of the heart and lungs. In looking over a large number of reports, I find, as a rule, that the respiration continued high as long as the fever lasted, while the pulse was often at the natural standard, or even below it.

Taking the ratio of the respirations to the pulse in health to be 1 to 5½ or 6, *i.e.*, reckoning the former at 12-14 per minute, and the latter at 70, and then looking at continued fever, we find the average pulse in that disease to be 100, and the respiration 25-30 per minute, making the ratio 1 to 3, instead of 1 to 6. Often even during the course of fever the pulse may be descending while the respiration *remains high.* Thus, for example, a woman with typhus and a mulberry rash, and

having no chest or abdominal symptoms, had a pulse 116 and the respiration 36 in the minute; the former soon became 100 and the latter 32; the pulse then sank to 90, and afterwards still lower to 52, while the respiration had only reached 26; the skin was still hot and dry, and the pulse descended still farther to 42, while the respiration was 22. The respiration is here seen as much above the standard number of health as the pulse is below it. Perspiration broke out, and the patient convalesced, and at the same time the pulse rose and the respiration fell until each had reached its natural number. In all cases of fever the pulse does not descend so low, but constantly in typhus towards the height of the disorder the pulse may be at 70 while the respiration is, as a rule, double that of health. The same facts as above stated may be found in scarlatina, measles, and other febrile diseases, but as it may be objected that a congestion of the lungs in fever and the exanthemata may be sufficient to account for the phenomena, we may take rheumatism, and selecting cases where no pulmonic or cardiac complication existed, we still find that while the pulse in number was only half as many again as in health, the respiration was doubled or trebled. In cases where lemon juice was given, this difference was more than usually marked, for, as is well known, this drug is often observed to have a direct influence in lowering the action of the heart. In one case the pulse was 120 and the respiration 36; in three days the former was 70 and the latter 32; after three days more the pulse was still 70 and the respiration had reached 24. Thus the effects of the remedies had been to depress the heart's action, while the respiration was only lowered as the disease more slowly departed. In another instance of a lad where the pulse was 110 and the respiration 40, on the following day the former was 100 and the latter 32; in three days the pulse had fallen to 76 while the respiration was still 32, and during convalescence the pulse remained steady while the respiration gradually subsided to 17.

The fact then being that the number of respirations in all febrile diseases is increased, I *assume* that this is indicative of a positive increase of function of the lungs, and the blood comes to the lungs loaded with an increased amount of effete matter to be eliminated, that the *besoin de respirer* is more felt, and that the function is for the time augmented. I say, having assumed this from the above-observed facts, I anxiously sought in Dr. Parkes' lectures for some direct observations or experiments to prove the point, but I found that little had been added to this part of the subject. It would be, however, a matter of the highest importance in relation to the subject which that gentleman so well discusses, if it could be shown that during a patient's fortnight's illness with typhus, two or three times as much carbonic acid and other excreta are given off by the pulmonic exhalation as in health.—*Med. Times and Gaz.*, *May* 12, 1855, *p.* 472.

3.—TREATMENT OF FEVER BY BRANDY AND QUININE.

By Dr. F. H. Shute, Physician to the Torbay Infirmary.

[This case shows the general treatment of typhoid fever followed at this institution. From July, 1854, to February, 1855, 47 cases were treated, of which only one died. The average duration of the cases was one month.]

Some years ago, port wine was almost the only stimulant ever used, owing, I suppose, to its being, *par excellence*, the favourite beverage of the three-bottle men of the day; and it still maintains its ancient *prestige* in the sick-room, though at our tables it has given place to purer and lighter wines. I have long considered that in brandy we possessed a much more efficient and manageable stimulant, minus the impurities of port and sherry; but our late House-Surgeon, Dr. Biggs, first brought to my knowledge Dr. Todd's treatment by quinine, as practised at King's College Hospital. My experience, certainly, does not coincide with the propriety of its administration from the very commencement of the disease, although, after the heat of surface has been lowered by the use of salines, the best effects seem to have resulted from its employment. Brandy and chlorate of potass, as a drink, were employed from the commencement. All the out-cases were attended by *our excellent* House-Surgeon, Mr. Stabb; the only case as

in-patient, E. W., was admitted under my care on October 10; a native of Cambridgeshire, aged 23, housemaid; apparently, when in health, a strong girl; has been ill for three days, suffering from diarrhœa; presents the facies of fever; countenance dull and leaden; answers hesitatingly and confusedly; says that she feels no pain; eyes wandering; pulse frequent and soft; tongue coated with a thin white fur; thirst considerable; heat of surface moderate; urine scanty and high-coloured; pain on pressure over abdomen, with gurgling in right iliac fossa; one or two rose-coloured lenticular papulæ; no sudamina.—℞. Spt. ammon. ar. 3ij.; tr. hyoscyam. 3i.; potass. nit. 3ss; mist. salinæ (potass. cit.) ad ℥vj.; una uncia 4tis horis. ℞. Hyd. chlorid., p. Jacobi, āā gr. ij. statim sumend.

12th. During the night she has got out of bed in delirium, and requires restraint to keep her in bed. Intellect more obtuse; bewildered look when roused; no sleep. Brandy ℥iij. during the twelve hours. Beef-tea every hour. ℞. Hyd. c. cretâ gr. xviij.; p. ipecac. co. 3ss.; ft. pulv. vi.; unus 4tis horis sumend. ℞. Potass. chlor. 3ij.; aq. font. 0ij. for drink. Continue brandy and beef-tea.

13th. No sleep; constantly wishing to get up; hearing dull; the answers given evincing great hesitation and indifference. Fur on tongue thick, and brown. Rept. pulv. potass. chlor. and brandy.

14th. State the same, with a good deal of sickness. ℞. Potass. bicarb. 3ij.; ammon. carb. 9i.; acid. hydrocy. dil. ℥xv.; aquæ ad. ℥viii.; una uncia ter die. Rep. potass. chlor. Omit brandy.

15th. Sickness less; black sordes on the lips and teeth; tongue hard and black; diarrhœa urgent. ℞. Acid. sulph. dil. 3iij.; aq. cinnamon. ℥vi.; una uncia 4tis horis sumend. ℞. Vin. rub. 3vi.; tr. columbæ ℥ss.; una uncia ter die. Beef-tea, brandy.

18th. Diarrhœa less; sickness urgent; otherwise the same. Rep. mist. alkalina c. acid. hydrocy. ℥i. 8tiis horis. Beef-tea and brandy.

20th. Sickness still continues; subsultus tendinum, twitching of the fingers during sleep, picking of the bed-clothes; very drowsy. Rep. mist. alkalina, et adde tr. sambul. 3ij.

21st. Prostration great; low muttering; answers incoherently, with difficulty of utterance; subsultus increased; pulse 160, soft, small; stools discharged involuntarily. ℞. Tr. opii 3i.; decoct. amylæ 3iv., pro enem.

22nd. Prostration increased; sickness ceased. Ordered the best pale brandy to be procured. ℞. Spt. vin. gal. pallid. ℥vi.; mist. camph. fort. ℥xx.; cyath. vinos. omni horâ vespere. Rep. brandy and camphor. ℞. Potass. chlor. 3i.; spt. ammon. arom. 3ss.; aq. ad ℥vj.; una uncia 4tis horis.

23rd. Answers more rationally; less subsultus. Pulse 140; skin cool, with some moisture. Rep. brandy and camphor. ℞. Quinæ disulph. gr. xii.; tr. aurant. 3iij.; tr. cinnam. co. 3iv.; aquæ ad ℥vj.; una uncia 4tis horis sumend.

From this time she continued to improve, taking the quinine and brandy, till the 25th, when she was put on full diet till the 29th, when slight bronchitis supervened. Add. ad mist. quinæ, vin ipecac. 3i.; tr. hyoscyam. 3ij.

Jan. 1. Rep. mist. quinæ.

4th. Rep. mist. quinæ.

7th. Discharged cured.

N.B. In three days this patient took two bottles of pale brandy combined with very strong camphor mixture.—*Med. Times and Gazette, Aug.* 18, 1855, *p.* 163.

4.—ON FEVER.

By Dr. Wm. Stokes, Regius Professor of Physics in the University of Dublin.

A certain change has occurred in our opinions as to the origin of the so-called typhoid inflammation of the lung. We at one time held that it was the co-existence of gastritis or enteritis which gave to the pneumonia the typhoid character. This view was held by us before we had, by that imperceptible power of conviction which arises from experience, admitted the two following principles *in their entirety*:—

1st. That symptoms which are diagnostic of local disease, where the patient has not an essential fever, are either altogether valueless or much lessened in value when such a condition exists; and

2nd. That the gastric or gastro-enteric lesion is rare even as a secondary disease in fever; so that when irritation of the structures of the intestinal tubes occur it is a remote, tertiary, and accidental phenomenon.

Our present opinion on this matter is in general the following: that in cases in which there are, in connection with the signs of typhoid lesion of the lung, evidences of gastro-intestinal disease, both the pulmonary and abdominal lesions spring from the one parent condition, and that so far from the specialities of the pulmonary being derived from the accidental complication with the abdominal disease, both have a common character originating in the same source. I am quite sure that a large proportion of those cases described as asthenic pneumonia depending on gastro-intestinal complication, have been examples of essential fever, with the two affections co-existing as secondary lesions.

We have seen that in these cases, I will not say of typhoid pneumonia, but of typhous or typhoid affections of the lung, the various physical signs of pneumonia, singly considered, may be present, and are actually often to be found. They fail, however, very frequently to present themselves in the regular order or succession which is observed in true acute pneumonia.

Now let us inquire whether there is any physical sign peculiar to these cases of typhous pulmonary affections, which does not occur, at least as the rule, in ordinary pneumonia; and I do not know of the existence of any such, unless it be the sign of tympanitic resonance over the diseased lung, a condition first noticed by Dr. Hudson of Dublin, and to which he attaches some importance. Dr. Hudson states that in certain cases of typhoid consolidation of the lung, the sound on percussion was very different from that observable in the ordinary condition of hepatization. He describes it as "a tympanitic clearness over the solidified lung without air being present in the pleura;" indeed he goes so far as to say that in one case the tympanitic clearness on percussion existed fully to the same degree and of the same kind as in pneumo-thorax; here the lung was found perfectly solid throughout, with the exception of a small extent of the anterior and postero-inferior parts, which was still crepitating.

It is very difficult to understand what condition of parts could have caused this singular tympanitic clearness over a solidified lung. When we speak of tympanitic resonance, it must be always borne in mind that the tympanitic sound does not always imply clearness on percussion. When you have a cavity in the centre of a solidified lung, or when you have hepatization of the left lung, in connexion with flatulent distension of the stomach, the sound, on percussion, though dull as compared with that of the healthy lung, has a distinctly tympanitic character; to this we have long been in the habit of giving the name of tympanitic dulness. I have never found it, however, to simulate the tympanitic resonance which occurs in pneumo-thorax, or in dilatation of the air cells; it is inferior in degree, and different in character. Dr. Hudson met with four cases, in which the observation of this phenomenon was followed by dissection. One was that of a man who died of extensive inflammation of the left lung in the Meath Hospital, in the spring of 1832, in which, at the close of the case, from the hollow sound on percussion at the lower part of the left side, it having been previously quite dull, a pretty general opinion existed that a pneumonic abscess had formed and burst into the pleura. On dissection, the side having been punctured, no air escaped; the lung was red and solid, but without abscess, and the pleura was adherent over two thirds of its extent. I must, in justice to myself, state that, in this case, I never entertained the idea that an abscess had opened into the pleura. In another case, the lung was found hard and solid, from chronic pneumonia; and in the two remaining cases, the condition of parts was similar to that which was presented by that first detailed.

Dr. Hudson admits that, in three of those cases, the tympanitic sound might be explained by reference to the distended state of the stomach; but in the fourth, he thinks that the explanation might be found in the facility with which the vibrations of the air in the bronchus, and its larger divisions, may be supposed to be communicated *through a lung in that condition*, that is to say, solid throughout; and,

therefore, not permitting the loss in a mixed medium of solid and healthy lung of such vibrations.

I am quite prepared to admit that, with extensive solidification of the lung, the dull sound, on percussion, may yet have a tympanitic character; but I have seen no case in which this sound could be confounded with that of pneumo-thorax, or of dilatation of the air cells. With reference to the bearings of this question upon the signs of typhoid pneumonia, I can only at this moment remember two cases which are worth detailing to you. In one, tympanitic dulness did occur over the diseased portion of the lung, without our being able to account for it, by any accumulation of air, either in the pleura or in the stomach. The case was of a low putrid character, and I remember suggesting it as a matter just possible, that there might have been a typhoid pneumatosis developed in the diseased lung; but I am sure that we were not able to establish the existence of such a condition on dissection: the case occurred a good many years ago.

In the second case, which was one of manifest typhus fever, the posterior portion of the right lung became solid or nearly so, while the anterior face of the organ preserved its vesicular respiration. Now we found that over this portion of the chest, that is, over the front of the thorax on the right side, the sound, as compared with that over the opposite lung, was morbidly clear; it was true tympanitic clearness, not dulness, and it continued for three or four days, and gradually disappeared with the resolution of the posterior solidity: this case occurred in the hospital last year, and was seen by Dr. Hudson himself. I confess I am quite at a loss to explain the nature or mode of production of this phenomenon. My friend Dr. Lyons mentions to me that in a case of asthenic pneumonia occurring in a patient of intemperate habits, which we saw in consultation, the anterior superior part of the left lung presented for a couple of days a condition of morbid clearness, but subsequently became engaged in the general consolidation of the organ.

Dr. Lyons is disposed to regard the abnormal clearness which occurs in these cases as the result of the increased pressure of the respiratory column of air in the still permeable portions of the pulmonary cells, which he considers in certain cases become from this cause expanded beyond their natural volume. His views are, that the inspired air presses with a certain force on the whole pulmonary surface, and that if a portion of this surface becomes impermeable to air from solid deposit, occlusion of the tubes which forced it, or other cause, the remaining portion of the pulmonary tissue is acted on by the whole of the inspiratory force, before which it is thus made to expand; this portion of the lung may thus be considered to be in a condition of temporary emphysema, and so gives a correspondingly clear sound on percussion.

There is a circumstance in connection with the resolution of these typhoid or typhous diseases of the lung, different from what is commonly observed in sthenic pneumonia. You know that the true inflammatory hepatization rarely disappears in a sudden manner. It subsides gradually, and the transition-state between dulness and clearness on percussion is generally marked by the "crepitus redux." In the cases, before us, however, and especially where the disease is secondary to typhus fever, the resolution, as I have before stated to you, is often singularly rapid, and is often unattended by the crepitus of resolution. If, then, you consider the state of solidification simply, we find it on the one hand to form without the crepitus of the first stage of pneumonia, and on the other to disappear rapidly, and without the rule of resolution. Thus we are permitted, as it were, to witness the silent and spontaneous development and retrocession of one of the secondary diseases of typhus.

This change from the state of consolidation to that of permeability to air, this rapid change, unattended by the crepitus and resolution, probably shows that the real disease was one unconnected with inflammation, either as a primary or a reactive condition.

You will remember that I suggested to you that some of the cases which have been described as a typhoid pneumonia, might be held as examples of an aborted typhus. These were characterized by early consolidation, early disappearance of the typhous state, and a rapid, and often spontaneous subsidence of the local *disease. I cannot* help thinking that between such cases, and those in which the *general disease runs its usual* course, there is another class or category of cases in

which the progress of the merely pulmonary disease is marked, more or less, by signs of irritation or inflammation of the lung, which inflammation or irritation is either reactive or specific, or both reactive and specific. And I apprehend that these cases which, as it were, float between the aborted and the perfect typhus, are much more numerous than might be supposed; and in such instances the case is often treated throughout, without a suspicion of its being really an example of typhous disease having been entertained.

What has been now said should impress on your minds that rule in practice which I have so often urged upon you, namely, that *the rules of diagnosis of local inflammatory disease which are good in ordinary cases, lose their value in a great measure when the patient has typhus fever.* This was long ago proved by the researches of Louis on the condition of the brain in fever, and it was the non-recognition of this fact which constituted one of the greatest errors in the system of Broussais. I have told you, that if you gained nothing during the season but the knowledge and full appreciation of this great principle, your time would have been well spent. How many cases have we not had of headache, delirium, watchfulness, or its opposite, coma,—yet without encephalitis; and so it is with the remaining cavities—symptoms of functional alteration are met with in connexion with the cerebral, pulmonary, circulating, and digestive systems in fever. They may or may not be attended by organic change, and that organic change, when it does exist, is not necessarily inflammation; and we cannot, I believe, lay down any satisfactory rule of diagnosis which would show, that in one case of local functional disturbance there was organic change, and in another that there was not. But this much we do know, that those groups of symptoms which are diagnostic of local inflammation in a case which is not fever, cease to be so when they occur in a case of typhus. Let this principle be ever present to your minds, for it is impossible to exaggerate its value. Long ago it was acted on empirically by the best physicians, who refused to adopt antiphlogistic measures in treating the local symptoms in typhus, and who employed stimulants irrespective of them, when the general condition seemed to demand such treatment. It now comes before you as the result of an extended and accurate pathological investigation, and the study of the pulmonary phenomena, as we have seen, enables us to go a step further, and to declare that not only are the symptoms of local irritation doubtful or illusive; but that even the physical signs of a pneumonia, when occurring in a case of typhus, are not to be taken as proof that a local inflammation has occurred.

If these things be true so far as our typhus is concerned, it would appear probable, that in other acute diseases, under the influence of a law of periodicity, and, perhaps, in many that arise from the operation of an introduced poison, the same circumstances may be found, so that we might apply to a much larger circle of diseases those principles as to the secondary local affections, which appear applicable to typhus fever.—*Med. Times and Gazette, May* 26, 1855, *p.* 509.

5.—THREE CASES OF INTERMITTENT FEVER, TREATED BY OLIVE LEAVES.

By T. Spencer Wells, Esq.

Case 1.—J. H., 62nd regiment, aged 34, had intermittent fever in India in 1845. He was in hospital twenty-one days. The first eight or nine days the attack recurred daily; afterwards every other day. He remained free until May, 1854, when he had a slight attack in Malta. The next was in February last, in the Crimea. He had another in April, and was in hospital twelve days, the attack recurring daily. He had two attacks on board the vessel which brought him here, on the 4th of May. No treatment was adopted until the 9th, when he was ordered three grains of quinine three times a day. On the 11th, he had the first attack in hospital, and was ordered two ounces of the infusion of olive leaves three times a day, the quinine being discontinued. The infusion was continued until the 17th, when he had another attack. *The infusion* was then changed for a strong decoction, which *he continued until the 24th.* He has had no return of the paroxysm

since commencing the use of the decoction,—upwards of six weeks ago. He has been kept in hospital since, in order to dilate an old stricture in the pendulous portion of the urethra.

Case 2.—J. H., 41st regiment, aged 25, never had intermittent fever until he was at Varna, in July, 1854. He was then in hospital two months with quotidian. After he went to the camp, attacks occurred irregularly; he would be in hospital for a few days, and then go to duty. They occurred regularly every other day for some days before he left, and he had one attack on board ship. He arrived here on the 4th of May, but had no attack until the 17th. On the 18th, he was ordered a strong decoction of olive leaves every four hours, which he continued regularly until the 28th. He had one attack after commencing to take the medicine, but has since been quite free. He remains in hospital on account of granular conjunctiva.

Case 3.—F. D., aged 26, Chatham orderly, had intermittent fever in Poonah and Hyderabad, in 1852. It recurred at first every third day, afterwards every ninth day, for seven or eight months. He arrived in England in July, 1854. He had no attack in England. After arriving here in the spring he had two very slight attacks, but did not apply for medicine. On the 18th of June he had a smart attack at 7 p. m., which recurred at 11 a.m. on the following day. He took an emetic and effervescing draughts, and on the 20th the decoction of olive leaves was ordered every four hours, as before. This he continued until the 26th, when he complained of pain over the liver, and the stools became light-coloured. Half-a-drachm of the acetate of potass was given three times a day, and diluents used freely until the 1st of July, and he was discharged to duty on the 3rd.

Mr. Wells added, that these were the only cases in which he had been able to try the effect of olive leaves in intermittents since he had drawn the attention of the Society to the subject at the first meeting. The results were satisfactory, or appeared to be so; but he did not wish them to be received for more than they were worth, and brought them forward principally to elicit the experience of others, and as some encouragement for further observations.

[The decoction is made by boiling two ounces of fresh leaves in a pint of water.] —*Med. Times and Gazette, Aug.* 11, 1855, *p.* 147.

6.—*On the Febrifuge Properties of Salicine.* By Dr. Macari.—Salicine is a white, crystalline, soluble substance, and is exclusively employed in Spain and Portugal in the treatment of intermittents. As there is reason to believe its importance as an indigenous febrifuge has been underrated, or that its employment has not been properly managed, it may be interesting to quote the conclusions Dr. Macari, a Sardinian practitioner, has arrived at respecting it.

1. Salicine is an important succedaneum to quinine, both from its febrifuge power, and the repugnance many patients manifest to quinine. 2. The dose is from 15 to 45 grains, given during the intervals of a paroxysm, and repeated according to circumstances. 3. The first dose generally notably diminishes the intensity and duration of the next paroxysm, but rarely cuts the fever short. 4. The mode of action is analogous to that of quinine, but feebler, so that the drug is not suited to pernicious fever liable to fatal termination. 5. It is given most efficaciously in solution. 6. Its price, already much lower than that of quinine, is susceptible, in the event of a demand arising, of much diminution, owing to the little value of willow bark. 7. Salicine does not give rise to any of the perturbations of the nervous system produceable by the preparations of bark. 8. It is successful in all simple intermittent fevers, at whatever age, or state of health, these may occur; and it may, therefore, be often used as a substitute for quinine, when this becomes distasteful or inefficient. There are cases, however, which resist its influence, and for which quinine is required.—*Journal de Pharmacie.—Med. Times and Gazette, July* 21, 1855, *p.* 68.

7.—*On the use of Caïnca Root in Scarlatinal Dropsy.*—The root of Caïnca (*chiococca racemosa*) is highly extolled by M. Bruguier, as a diuretic; he warmly *advocates its use in divers* dropsies, but especially in that following scarlatina. He

says, "that there is not in the whole materia medica any drug that acts with more promptitude or more success." His enthusiasm seems to have induced him to overrate its merits, yet he details six cases in which the use of this root was attended with remarkable success.

Calnca root, bruised, 3ij.
Water, ℥viij.

Macerate for twenty-four hours, and boil: to be taken in three doses, at intervals of two hours. This decoction causes an extremely abundant flow of urine, causing micturition so frequently as even to interfere with sleep.—*Revue Therap. du Midi.* —*Dublin Hosp. Gazette, Feb.* 1, 1855, *p.* 12.

8.—*Creosote in Intermittent Fever.*—Zwetkoff was induced to make a trial of creosote in intermittent fever, (1) On account of its specific influence over the abdominal ganglia of nerves, especially the solar plexus, and (2) On account of its good effects in periodical vomiting. He gave it in doses of from nine to fifteen drops, three times per day, in mucilage.—*N. Y. Journal of Medicine.—American Med. Monthly, Jan.* 1855, *p.* 68.

9.—ON THE TREATMENT OF ERYSIPELAS.

By Dr. R. B. Todd, F.R.S., Physician to King's College Hospital.

[This disease is of very frequent occurrence, often of a very serious character, requiring the most diligent watching, and which we should be well prepared to treat. Dr. Todd's remarks, in a clinical lecture on this subject, are very valuable, and well worthy of attention. He notices two forms of the disease: first, erysipelas, attacking the head and face; and, second, that form which comes more under the notice of the surgeon. The first case mentioned was that of John Child, aged 20, who, after exposure to wet and cold, was attacked by general febrile symptoms, swelling and redness of the nose, which gradually spread, until they involved the whole of the face and head. Under the treatment adopted, this patient was well and discharged in six days after admission. On this form of the disease Dr. Todd says,]

The duration of the fever in erysipelas is not long, usually varying from seven to fourteen days, but the phenomena of the disease divide themselves into two classes, viz., the *primary* and the *secondary*. The former of these comprise the rigors, the vomiting, the general febrile symptoms, the rapid pulse, the peculiar redness, and swelling of the skin, &c.; and if due attention be given to uphold the powers of the patient from the commencement of the attack, it rarely happens that the secondary phenomena manifest themselves at all; for the poison of erysipelas, whatever its nature, appears to fall chiefly upon the tegumentary system, extending its virulence upon the true skin and the mucous membrane; but it sometimes, indeed frequently, if not combated by well-directed measures, spreads from the true skin and mucous membranes to the areolar tissue beneath these structures, and it then gives rise to the secondary phenomena of the malady, namely, fever of the hectic kind, and the formation of collections of pus, either at the seat of the primary disease or in other parts of the body. It is very important that you should keep in view this tendency which erysipelas has to involve the cellular tissue beneath the skin, and there induce the formation of pus; for it should be your aim to cure the disease without allowing it to effect these secondary consequences which are always exceedingly wearying and debilitating to the constitution, and sometimes so exhausting as to terminate the patient's life. In the case which I have just related to you the cure was speedily effected without the occurrence of any of these secondary results; and this I attribute in great measure to the plan of treatment which was adopted.

In the second example of erysipelas which I wish to bring under your notice to-day, the result was by no means so satisfactory: indeed the case forms a good contrast to that of John Child, illustrating as it does the less favourable course of the disease, under, as you will presently see, a very different course of early treatment from that *pursued in that case.* The patient is a lad named John Walker,

who was admitted into Fisk Ward on Feb. 17th, 1855, with erysipelas of the right leg and foot; and I am sorry to add he is still under treatment in the hospital, and likely to be so for some time to come. There was no history in this case of the patient's having received any injury, and nothing whatever to explain the occurrence of the attack; but it was attributed by the child's parents to his having lived very badly for some time, and to his having been of late too much exposed to wet and cold. The short account which we have of this case is this:—About a fortnight before the lad's admission into the hospital it was noticed that his right leg all the way down to the foot was exceedingly red and somewhat swollen, and this was accompanied with general febrile symptoms; but neither his parents nor himself could remember whether he had any shivering or not. He was kept in bed, and the only treatment which was adopted consisted in the application of hot fomentations to the limb, and from the necessitous circumstances in which the parents were situated, in the administration of the poorest kind of food, and very little of that.

Upon his admission into the hospital on February 17th, *i. e.*, about fourteen days after the commencement of the attack, it was found that the primary phenomena of the disease had run their course, and that the secondary phenomena had supervened. For this we cannot attach blame to the medical treatment adopted, for of such he, properly speaking, had none; but it is rather to be ascribed to the extremely bad living and poor food upon which the patient had subsisted during the whole of the winter, and to his having been deprived during the first fortnight of his illness of all those comforts which are so necessary during a severe attack of this disease. And here let me call your attention to the fact—that if low diet, and that general course of treatment which is commonly summed up in the word antiphlogistic, be essential to the cure of erysipelas, surely this poor lad had enough of it; nevertheless, it did not succeed in preventing the secondary phenomena of the disease from manifesting themselves, for, upon the patient's admission, there was distinct evidence of suppuration beneath the integument of the leg, for the relief of which it was necessary, after a day or two, to make two incisions through the skin, one along the outer and the other along the inner side of the ankle; and the following day it was thought expedient to make a third incision along the dorsum of the foot, for the escape of a considerable quantity of pus which had collected in that situation. The weakness of the patient on his admission was extreme; his pulse was 120, small and very compressible, and the treatment upon which he was at once put consisted in the free exhibition of beef-tea and brandy, ammonia and chloric ether.

The further history of this case is this:—The erysipelatous swelling of the leg and foot subsided, but a very free discharge of pus continued and still continues to take place; the rapidity of the pulse kept up and the exhaustion became, if possible, still greater than on the patient's admission, so that it was found necessary to adopt every means which could be resorted to for the purpose of upholding his strength. To this end beef-tea enemata, each containing ten grains of quinine, were administered regularly every fourth hour, half an ounce of brandy exhibited every half-hour, and as much beef-tea and milk, thickened with flour, as the patient could take; but, notwithstanding all this, the pulse kept up, being 134, 137, 140, &c., and never below 120, the suppuration continued to progress, and, a day or two ago, a large sinus was found to have formed between some of the muscles of the leg, so that it is even now exceedingly doubtful whether this lad will ever recover; for, when suppuration has taken place to this extent, it often not merely spreads along the areolar tissue between layers of muscles, but also, when in the neighbourhood of joints, it may extend downwards and involve these last, and it is by no means improbable that some of the joints of the tarsus may here become affected which may render the amputation of the leg necessary, and such a measure as this, I need not say, would be attended with great hazard to life in a patient so thoroughly depressed and exhausted as this poor boy is. And before dismissing this subject let me observe, that in all these cases the rapidity of the pulse from day to day is a valuable index of the progress which the suppurative process is making; for if you find that the rate of the pulse keeps up, despite of free supplies of nourishment, you may infer that more mischief is about to ensue, *and that further suppuration* will occur; and under these circumstances you will

seldom find that the pulse will come down until a free discharge of purulent matter shall have taken place.

Such then, gentlemen, are the two cases which will serve as the basis of my remarks to-day. The one, an ordinary case of erysipelas of the head and face; the other, a case of that form of the disease which is most frequently met with in the surgical wards, phlegmonoid erysipelas, and which is precisely analogous to the traumatic erysipelas, or to that which follows a surgical operation.

Now, as I have already remarked, the most common form of erysipelas which comes under the care of the physician is that of the head and face. Let us trace the clinical history of this disease. It very frequently begins in the throat, and it is important that you should be well acquainted with the various courses which it may take. It is one of the features of this disease that it has a remarkable tendency to spread, sometimes wandering all over the body, from face to neck, and neck to trunk, being then termed erratic erysipelas. When, then, it has commenced in the throat, it seldom finishes its course there, but immediately begins to spread, and its ordinary course is upwards from the throat through the nose to the face and head; but it sometimes pursues the opposite direction, and wanders down, along the respiratory mucous membrane. In following this latter course it generally passes very quickly, and most fortunate is it for the patient that it does so, over the laryngeal mucous membrane, and then, affecting the mucous lining of the air-passages below the larynx, produces *erysipelatous bronchitis*—a complaint of more common occurrence than is generally supposed, of very fatal tendency, accompanied with great prostration, and which often leads rapidly to purulent expectoration. When this malady terminates fatally, it generally does so by inducing that condition which, since the death of the emperor of Russia, has been so much talked about as paralysis of the lungs—a bad term, intended in plain English to express that state of things which occurs when the air-passages become choked up with muco-purulent secretions which the patient is too much exhausted to expectorate; this accumulation of viscid secretion in the air-tubes tends, of course, to produce suffocation, by interfering with the proper aeration of the blood in the lungs; and the consequent retention of carbonic acid in the circulating fluid poisons the nerves and nervous centres, diminishing their excitability, and rendering less free those reflex actions on which expectoration in some degree depends. This is still more promoted by the accumulation of the secretions in the air-passages, and so these two conditions, narcotized nerve and loaded air-tubes, go on mutually acting and re-acting upon each other until at length death takes place.

In some instances, however, the erysipelas commencing in the fauces spreads no further than the laryngeal mucous membrane, and it then produces what is termed œdema glottidis, one of the most formidable affections to which the human frame is liable. I cannot too strongly insist on keeping in mind the true pathology of this most alarming malady, for if you thoroughly understand the true nature of this complaint, and act up to that knowledge, you may, I believe, save many lives; whereas, if you are shilly-shally in your treatment, either from ignorance of the pathology of the disease, or from prejudice in not acting up to your knowledge of it, you will certainly lose your patient.

The disease consists in an erysipelatous inflammation of the laryngeal mucous membrane, which rapidly leads to swelling of the glottis, and thus to narrowing and occlusion of the rima glottidis, which induces the most intense dyspnœa, and quickly kills. For this condition there is but one way of affording relief, and that is by immediately making an artificial opening into the trachea, below the chink of the glottis; and the farther below this point the opening can be conveniently made, the better, though, as you are all doubtless aware, the lower down the aperture into the trachea, the more formidable is the operation. But what I wish to impress upon you is, that you should lose no time in resorting to this step, after having become satisfied as to the nature of the attack; the sooner the operation is performed, the greater probability will there be of your saving the patient's life. Nevertheless, I would remark that although the first step in the treatment which has to be performed by the Surgeon, viz., the providing an artificial inlet for air into the lungs, is a very important one, *still* the most important part of the treatment *belongs to the Physician; and* any one who has witnessed the proceeding

must have felt convinced that although the relief afforded by the operation is instantaneous as regards the breathing, yet the patient will still die unless proper means are adopted to combat the local affection and the constitutional state which accompanies it.

I have long been convinced that the ordinary so-called antiphlogistic means are not only powerless as regards the œdematous state, but are destructive to the vital powers of the patient, already much depressed by the necessary surgical interference, and I determined, when opportunity offered, to pursue, from the moment of the operation, a different line of treatment.

[In another case, where there were severe symptoms of œdema of the glottis, tracheotomy was performed, and the patient's strength kept up as much as possible.]

He was fed upon strong beef-tea, and brandy, of which half-an-ounce was given every hour, and ammonia and chloric ether were also freely exhibited; and lastly, as at first, his power of swallowing was not good, injections of beef-tea, containing a considerable quantity of quinine, were thrown, at stated intervals, into the rectum. In short, this patient was well supplied with food and stimulants, but in small doses at short intervals; and, during the whole time he was under this treatment, you will hardly believe it when I tell you, he had scarcely any fever, and his pulse from 110 in a minute steadily came down to 99 on the first, 86 on the second, and 75 on the third day after the operation. On the evening of the second day the tube was taken out of the trachea, as he was found to cough up mucus freely through the glottis; in a fortnight the wound was healing up kindly; and in a month from the date of the operation, the patient was discharged quite well, the wound being by this time perfectly healed.

Now if you look at the statistics of these cases, you will find that the deaths are but little under a hundred per cent.; indeed it is a very rare thing for one to hear of a case of recovery from œdema glottidis after the operation of tracheotomy has been performed; and it seems to me very questionable whether similar treatment to that which was pursued in this instance ought not always to be adopted in cases of tracheotomy, for the operation is in itself a very severe one, and accompanied with great shock to the nervous system, while there is invariably great distress of the respiratory organs during its performance.

Let me now call your attention for a few moments to that form of erysipelas which, commencing in the throat, confines itself entirely to the faucial region. I need not now enter at length on this subject, as two years ago I gave two clinical lectures on it, to which, if you are so disposed, you can refer; but I shall content myself with giving you a very brief account of this disease. Its peculiarity consists, as I just now remarked, in the fact that the force of the poison seems to fall upon the mucous membrane of the pharynx, and to paralyze the pharyngeal muscles, so that the patient is apt to die, not from want of air as when the erysipelatous poison attacks the mucous membrane of the larynx, but from want of food, the inability to swallow being even greater than in cynanche tonsillaris, which creates a mechanical obstacle. If you look into the throat of a patient labouring under this affection, you will find the pharyngeal mucous membrane exhibiting a peculiar dusky-red colour, the fauces will be perfectly open, and you will be unable to discover any mechanical impediment to free deglutition; and if, now, with your finger, or a pen or probe, you touch the back of the pharynx, you will find that none of the pharyngeal muscles are thrown into action, as invariably they are in a state of health—in other words, you cannot excite the reflex actions necessary for deglutition; and if you give the patient something to swallow, as soon as he gets the liquid or solid, whichever it be, upon the back of the tongue, instead of its being grasped by the contraction of the muscles of deglutition, and guided, as it were, into the œsophagus, as it would instantly be in health, in consequence of the complete palsy of these muscles, it falls by its own gravity down into the larynx, and is thence immediately ejected by a powerful expulsive effort through the mouth and nostrils. I have seen and have notes of several of these cases which have occurred both in Hospital and in private practice, and all those which were treated upon the antiphlogistic plan died; but for some years past now, from being better acquainted with the true pathology of the malady, I *have invariably resorted to an* opposite mode of treatment, precisely that, in fact,

which I just now advocated as most beneficial in œdema glottidis, except that we can get on here without calling in the aid of the surgeon—and since I have pursued this practice, I have not met with an instance of this affection which has not recovered. The difficulty in the treatment of these cases is to get sufficient nourishment into the patient in consequence of the complete inability to swallow; but if a person cannot gain admittance into a house through the front door, the first thing to which he would most probably resort, if it were very important that he should gain entrance at all, would be to try at the back door. So here, since there is an almost insurmountable difficulty in introducing food into the stomach through the mouth, the only resource left us is to throw beef-tea injections, containing large doses of quinine, into the rectum, and feed the patient in this way. Then the back of the fauces should be lightly touched by the solid nitrate of silver, or freely washed with a strong solution of it, and as soon as the power of swallowing begins to return, which it generally does under this plan of treatment, in the course of from twenty-four to forty-eight hours, frequent and large doses of brandy, ammonia, chloric ether, and beef-tea should be exhibited by the mouth. If, however, from any cause, the plan of feeding by the rectum fails to restore the power of deglutition, you may then have recourse to feeding by the stomach tube; but this mode of proceeding is generally unsatisfactory, and must only be resorted to when all the other means, which I have just mentioned, have been fairly tried and found unsuccessful.

Thus, then, you see, that erysipelas not only affects the external integuments of the body, but also the mucous membranes, both alimentary and respiratory; and in addition to those parts which I have already mentioned as so peculiarly liable to be fixed upon by the poison of this disease, there is one other tissue which, I suspect, it not unfrequently invades, viz., the peritonæum, producing what is known as puerperal fever, or puerperal peritonitis, a disease which I believe is really of an erysipelatous nature, and which certainly in most, if not in all instances, requires to be treated upon a thoroughly supporting plan.

And, in conclusion, let me say a few words upon the treatment of erysipelas generally; but before entering into this part of my subject, I would wish to call your attention particularly to this fact,—that, in looking fairly at the clinical history of the disease, and the issue of various examples, we may arrange the various cases of erysipelas into the five following classes:—

a. There are certain cases of erysipelas which get well of themselves, and these are generally examples of the disease in a slight form, affecting the head and face only, or some other limited portion of the skin. Usually in the course of two or three days, especially if they are kept in a comfortable place, and have a little beef-tea, patients suffering from attacks of this intensity recover, and this, too, in some cases, despite of a lowering treatment, and the use of such remedies as tartar emetic.

b. In a second set of cases of this disease, the very opposite of the first class, the patient dies downright, if I may use the expression; he sinks rapidly, do what you will. This mode of termination is common to erysipelas, with most of the other diseases which are due to the influence of the poison, whether it be generated in the body, or be of atmospheric origin. Thus in a considerable proportion of cases of cholera, it is perfectly in vain to attach very much importance to anything in the way of treatment, for the patient is dead almost before the case comes fairly under observation; and, in such instances, I doubt that any plan of treatment ever will avail, because the morbid phenomena are of such rapid accession, almost as rapid as if the patient had taken a large dose of arsenic or of prussic acid. The same kind of thing also occasionally happens in typhus fever, the patient being killed, within a very few days, or even hours, of the commencement of the attack; and so, likewise, in all the exanthemata, small-pox, measles, scarlet fever, &c.,—all treatment often utterly fails, and death occurs during the first twenty-four or forty-eight hours of the illness.

Hence, then, it becomes necessary in all endeavours to estimate the value of any particular plan of treatment in erysipelas, carefully to eliminate from the data upon which conclusions are to be founded these two classes of cases, viz., first, those which would get well of themselves; and, second, those which defy every attempt at treatment.

subject but little understood, but very serious errors are generally entertained upon it. It may be remarked that all knowledge in the medical art has ever been but slowly acquired. It is but a short time since that the reparation of wounds was ascribed to inflammatory action, although it is now perfectly understood that inflammation is but a disturbing cause too apt to interfere with, and delay the process of reparation; and in point of fact the treatment of those injuries consists in avoiding the causes of inflammation, and placing the injured parts under such circumstances as the surgeon knows from study of the natural mode of reparation, to be favourable to the process of cure. Any improvement in the medical art has always been evinced by greater simplicity of treatment, arising from more accurate knowledge of the principles.

Now it may be stated as a general rule, and most valuable maxim, that whenever nature undertakes to perform a specific process of elimination, the greatest possible care should be taken by the physician that no interference on his part should meddle with its accomplishment. "A meddlesome midwifery is a bad midwifery" was the frequent exclamation of an able teacher of his art; that a meddlesome physician is a bad physician is equally certain. In fact, the difference between one physician and another consists in the success with which each interprets nature. Let us illustrate this position by reference to the exanthemata.

In small-pox the treatment is founded on the theory that the skin secretes or separates the poison from the body, and it is on the knowledge of what this process is, as revealed by direct clinical observation alone, that the physician is of service in conducting a case in the path of recovery. It is a matter of history that all attempts on his part at elimination have ever been attended with but one result —namely, that of aggravating the disease; while successful treatment depends wholly on the power of the constitution in eliminating, and on the resources of the practitioner in removing all obstructions to the completion of this process; and, when this is accomplished, to sustain the patient during the extensive reparation which the skin has to undergo from the ravages of the disease upon it. Again, in scarlet fever the process of elimination is left to the natural efforts, whether this be by the skin or kidneys, the treatment, as far as this is concerned, being still to take care that these structures are placed under favourable circumstances for the performance of their functions. So, in cholera, if the alimentary canal be really performing the part of elimination, then the same rule applies—namely, that every obstruction to the performance of this function should be removed. To act consistently, we should totally abstain from giving aliment of any kind; it is unreasonable to expect that the alimentary canal can be assimilating and eliminating at the same time. We give ice on the same principle that we use cold ablution to the skin in certain states of fever—namely, to moderate excitement and relieve congestion, and thus remove obstruction to the performance of the necessary elimination. It is not from any vague notions of either astringency or supposed power of quieting the stomach that ice is useful; it is suggested by the direct clinical observation of nature, and its use is analogous to that of easy posture and comfortable applications in the treatment of wounds. We give water to quench the thirst, refresh the patient, and restore the fluidity of the blood, as soon as the system is capable of receiving it. It is a great mistake to suppose that the study of the process of elimination, regarded as a natural function, can lead to any other view respecting *eliminating medicines* than to wholly condemn them as the result of experience and reason.

I am induced to bring this subject before the profession, in consequence of the publication of Dr. George Johnson's views on the use of castor oil in the treatment of cholera, and I deem it necessary to show the fallacies of the reasoning by which it is recommended, and of the data by which it is supported.

Dr. Johnson refers to the blood as the recipient of the poison, and says, "It would, perhaps, be difficult to prove that any purgative medicine has the power of directly assisting the escape of the cholera poison, or the products of that poison, from the blood into the intestine; but it cannot be doubted that, by removing the contents of the bowel, and so obviating the impediment to the secretory process which would result from their accumulation, an indirect aid is given to the elimination *of the poison from the blood*. The speedily fatal consequences of over-disten-

tion of the bowel, when the attempts to remove that condition have been unsuccessful, may be seen in Case 31."

Now, the theory of purgatives which act on the blood is this:—Certain substances, when introduced into the system, are found to be shortly afterwards eliminated from it by the bowels, diluted with a considerable quantity of other material. Advantage is taken of this fact, in the practice of medicine, to eliminate certain morbid materials injuriously retained in the system, in the hope that they may be amongst those forming or contained in the menstruum which eliminates the drug.

The theoretical objection to purgatives of this kind in cholera consists in the fact, that the only reason why purgatives act at all is that they are of a poisonous nature, and we do but observe in their action or expulsion from the system that tendency to reparation which follows all injuries where vital power exists, and institutes for this very reason the diarrhœa in cholera. So that if a patient be poisoned by an excessive dose of any purgative received into the blood, it is unwise to give him senna or saline purgatives with the view of eliminating it; for if there be vital power, then the poisonous purgatives will be eliminated by nature's own efforts, and it is by no means certain that such poison would be more speedily eliminated by this proceeding; for the same menstruum may not be exactly suitable for each purgative drug, and so a waste of material and of vital energy may be thus induced, the elimination of the poison delayed, and the sinking of the patient hastened.

The practical objection to purgatives on the blood may be illustrated by the following example:—In 1832 an enthusiastic practitioner wrote to the Board of Health to announce an important discovery. He had treated some cholera patients with croton oil, and his success exceeded his sanguine expectations. The Board wrote for further information, and received in answer that the patients to whom the purgatives were given were all dead; but that circumstance was not to be regarded as any objection to the practice, for had it not been adopted the patients would have died sooner.—*Lancet, July* 14, 1855, *p.* 26.

11.—ON THE THERAPEUTIC PROPERTIES OF CARBAZOTIC ACID, &c.

By Dr. Moffat, F.R.A.S., &c., Hawarden.

[The properties of this acid were first brought into notice by Professor Crace Calvert, who read a paper on the subject at the Meeting of the British Association in September last. Dr. Bell, of Manchester, has cured cases of intermittent fever with this acid.]

It is formed by the action of nitric acid on indigo, aloes, silk, and other organic substances. It forms yellow shining scales, soluble in water, to which it gives an intense yellow colour and bitter taste. The process recommended by Liebig for preparing it consists in boiling ten parts of diluted nitric acid in one of indigo, and adding to the liquid, when cold, a quantity of potassa. The potassa combines with the carbazotic acid, and forms carbazotate of potassa; which, in its turn, is decomposed by the addition of another acid, by which the carbazotic is set at liberty, and is deposited in brilliant yellow crystals. It is soluble in alcohol and ether. It unites with salifiable bases, and forms compound salts. The name is derived from its composition, which, according to Liebig, consists of

Carbon	15 atoms.
Azote	3 "
Oxygen	15 "

Professor Crace Calvert's process I do not know; but, as I have before stated, the carbazotic is procured from carbolic acid, which, you are no doubt aware, is one of the products obtained in the distillation of coal tar.

In a therapeutic sense, carbazotic acid and the carbazotates may be ranked with the tonic and astringent classes of remedies; but their astringent qualities, I believe, act indirectly, *i. e.*, they restrain discharges, by improving the general tone of the system. I have prescribed the remedies in the following cases.

The first case *in which I used the* carbazotic acid was that of a woman

suffering from an attack of continued fever, complicated with subacute peritonitis and tympanitis. When the case had progressed to that stage in which the use of tonics and stimulants is indicated, I prescribed grain doses of the remedy three times a day. The woman got well just as if quinine had been administered.

The next case was that of a woman suffering from anæmia. She was recovering under the use of quinine and iron. I suspended the quinine and chalybeate treatment, and gave carbazotate of ammonia, in grain doses, three times a day. She lost ground while taking the carbazotate, and again improved on resuming the quinine and chalybeate remedies.

The next was that of a child ill of scarlatina maligna. Carbazotic acid and wine were administered. The child died.

I prescribed it next in a case of chronic eczema; and the patient got well.

Believing that carbazotic acid, in combination with ammonia and potassa, possessed tonic qualities, I felt inclined to try it in combination with metallic bases; and, at my suggestion, Professor Calvert prepared some carbazotate of iron and carbazotate of zinc. At the time I received them, I had two cases of cephalalgia under my care. One was of long standing. In one, I gave grain doses of carbazotate of zinc; and in the other (that of long standing), I prescribed the same quantity of carbazotate of iron three times a day, in combination with extract of conium. The carbazotate of zinc produced nausea and other unpleasant feelings; and the woman said I had poisoned her. I stopped the carbazotate of zinc, and gave carbazotate of iron, as in the other case. This did not produce any unpleasant effects. Both cases improved; indeed, one case got quite well; and that of long standing got so much better that I have not been called upon to prescribe for it since, and a month or more has elapsed since the remedy was administered. The quantity taken by each patient was thirty-two grains, in a period of fourteen days. In both cases, quinine and iron were tried, in combination with the same extract; and, in the case of long standing, sulphate of zinc and strychnine were taken without relief.

I shall now read notes of two cases in which the carbazotate of ammonia was eminently successful.

Case 1. S. E., aged 17 years, had lately suffered from an attack of continued fever. Diarrhœa continued during his convalescence, and for some time after he had so far recovered as to be able to walk about. On the 21st of May last, I prescribed grain doses of carbazotate of ammonia and gallic acid, with one sixth of a grain of opium three times a day. On the 26th, *i. e.*, five days afterwards, I saw him again; and he had improved. On the 2nd of June, the remedies were repeated, and continued daily. On the 7th, I reported him cured.

This young man had not been free from diarrhœa for three months previous to his taking the above medicines; and, during that period, gallic acid, acetate of lead, and opium, were administered without effect. He is now quite well.

Case 2. The next case was one of diarrhœa, of eighteen months' standing. The patient was suffering from mentagra or sycosis, of two years' standing. On the 4th of June, he began the same remedies, in similar quantities as in the preceding case. I lost sight of this patient for a time. I saw him, however, five days ago; and he said that he did not return, as the "bowel complaint was quite gone." Acetate of lead and opium had been administered in this case also without any good result. The sycosis is no better.

There is a circumstance in connexion with this subject of much physiological interest; and I feel that I shall not have performed my part if I do not bring it under your notice.

I have prescribed carbazotic acid and the carbazotates of potassa, ammonia, iron, and zinc, in eight cases; and, in four of these, the skin and conjunctiva became yellow during the administration of the remedies. They were completely jaundiced; and I believe that the yellowness was owing to the colouring matter of the remedies having tinged the serum of the blood. The coloration may have been owing to some change produced in the biliary system by the remedies; but I am inclined to the former opinion. The tinge of the skin and conjunctiva so perfectly resembles jaundice, that the keenest observer would be deceived; and I believe that, if the fact were generally known, there would be jaundiced imposters *and malingerers without end.—Association Med. Journal, August* 10, 1855, *p.* 742.

12.—*The Connexion between Rheumatism, Endocarditis, and Chorea.*—This subject has of late years engaged the attention of some of our most eminent modern practitioners. There is still, however, considerable difference of opinion as to the relation the above diseases bear to each other. . . . . Three chief explanations have been offered of it. It has been said, first, that when chorea supervenes, there is a marked disposition of the rheumatic affection to recede from the joints, and attack the internal fibro-serous membranes, and that, therefore, when we have chorea as a complication, we might infer the existence of the inflamed spinal theca. This theory might appear to receive some support from the case narrated to the Belfast Pathological Society, inasmuch as the joints were not so acutely affected as is usual, and the severity of the spasms causing even opisthotonos, led to the suspicion of the spinal cord being considerably engaged. The second theory is that the cardiac affection may operate as an excentric cause, producing irritation of the afferent nerves, and upon the principle of the reflex function, thus originate the irregular movements. The third and latest view regarding chorea as a blood-disease, looks upon the association of rheumatism, cardiac complication, and chorea, as owing to these maladies being the concomitant effects of the same cause—namely, the specific disorder of the circulating fluids.—Mr. Johnston, *Transactions of Belfast Pathological Society,—Lancet, June* 23, 1855, *p.* 632.

13.—ON THE DIAGNOSIS OF CANCER AND CANCROID GROWTHS.

By Dr. Maurice H. Collis, Surgeon to Meath Hospital, and County Dublin Infirmary.

[The clinical features to which the deposit of the cancer cell gives rise, are varied considerably by the age of the patient, the locality of the growth, and by the activity of its life. Cancers are divided into encephaloid, scirrhus, and colloid.]

The last has been of late discarded as a distinctive variety. It is now considered to be rather a condition, or stage of degeneration, in certain tissues, and is not absolutely confined to cancer, although it is generally associated with it. It consists of a gelatinous substance, devoid of organization, or possessing only the remains of it along with cancer cells; sometimes the latter are deficient, and the colloid substance appears to be merely the degenerated remains of fibrous tissue; hence, some suppose it to exist in cancer only, as the debris of the stroma of the tumour. These are speculations into which we need not enter here, for colloid tumours generally occur in the internal organs, intestines, &c., where they are beyond the reach of surgery. Small cysts, or granules of it, are met with frequently in external scirrhous tumours, but do not in any way influence our diagnosis or treatment. The two other forms of cancer have been sub-divided, according to the fancy of writers, into many varieties: most of them present clinical features, and may be useful for the sake of description, but are not to be considered as fundamentally different from each other. Even encephaloid and scirrhus are terms rather of clinical than scientific import. The difference which these two forms of cancer present are similar to those presented by the acute and chronic types of other diseases, and they refer entirely to the amount of activity in the development of the cancer cell. The terms are, however, so ingrafted into our systems of surgery, that it would be mere pedantry to discard them, although the terms acute and chronic cancer have been adopted by some writers.

Encephaloid cancer consists of an aggregation of cancer cells, actively and rapidly developed; hence, in proportion to its rate of growth, we find the cells small, round, or oval, with comparatively few nuclei, and an abundance of the blastemal fluid. Free organic granules, and compound granular cells, are also observed, in proportion to the activity of growth. Hence, a section of such a tumour pours out a large quantity of light yellow, or pink milky fluid, in which all these elements are readily found. The fibrous stroma, or proper tissue, of the seat of disease is pushed on one side by the rapid accumulation of masses of these cells; it therefore appears to have a curvilinear arrangement, and is not abundant or dense. The whole tumour is lobulated, the margins of the lobes being curved and composed of this fibrous tissue stretched and displaced; a filamentous network, of varying density, intersects the *lobule; the cut surface is* pulpy, easily scraped down, or crushed

into a pinky creamish fluid; and the entire tumour has a soft elastic feel, in the most acute cases almost amounting to fluctuation. Blood-vessels abound through the tumour, but not with regularity; for minute observations show, that large masses, composed wholly of cells, must derive their supply from vessels in contact with their outer layer, by a process of endosmosis or percolation.

The external surface of such a growth will be nodulated and uneven, but with curving outline; the integuments covering it will become tense and discoloured; their minute veins will be dilated, producing varicosities on the most prominent points, with the enlarged veins ramifying over the surface, and running in a direction from the tumour. At a later period the skin may give way; as it does, it becomes incorporated with the tumour, that is to say, cancer cells are deposited in the interstices of its fibrous tissue. From the orifice thus caused fungous granulations sprout forth, composed of cells (as all luxuriant granulations mainly are); from their surface a foul sanious or ichorous discharge is poured forth, which is composed of large quantities of broken-down cells floating in serum, or blastemal fluid, all in a state of rapid decomposition or putrefaction; pus corpuscles are also sometimes found, but not invariably, and they would appear to depend upon some accidental condition. Hemorrhage occurs as the result of violence of even a trifling nature, when the tumour is of rapid growth and soft. Occasionally, large masses of the diseased structure die by a process resembling sphacelus: the tumour arrives at a size in which the process of endosmosis seems insufficient to carry the nutritive fluid to those parts which are not in contact with vessels, while at the same time the force of the circulation is weakened by the destructive influence of the disease, and by the waste which it occasions in the system; hence, large portions of the tumour seem suddenly to lose their vitality, and are cast off as sloughs. Unfortunately, this process does not check the disease: cancer grows most actively, not in the centre, nor towards the surface, but in the circumference where it is in contact with the sound parts; so that the part possessed of most destructive energy is left behind, and the disease spreads with increased force under the influence of the vascular excitement which the sloughing process has engendered.

Encephaloid cancer is, from its acute nature, essentially a disease of early and adult life. In the child, it most frequently attacks the contents of the orbit and the bones; in the adult, the glands, viscera, and genito-urinary organs. The female breast is, comparatively, rarely the seat of this form of cancer—at least, in England; in France and, to a certain extent, in Ireland, it appears to be less rare. When acute cancer attacks the old or the feeble, it seems to be peculiarly rapid and destructive in its character: it prostrates the strength and destroys the energies of the wretched patient; it seems as if the vital force were concentrated on the morbid action, to the interruption of all healthy nutrition, and the disease runs its course with great rapidity. Scirrhus differs from encephaloid in many particulars, such as size, form, density, &c.; all differences are, however, referrible to its chronic nature. The cancer cells are more slowly developed, and attain a larger size; nuclei, which have not yet become cells, abound; cells of every variety and shape, but more particularly fibriform and cuneate, are observed, as well as fragments of cells, shrivelled or filled with oil globules. There are few organic or compound granular cells, and but little fluid; the fibrous tissue of the gland, or other seat of the disease, is hardened and condensed by the long continued irritation, and its contractile force tends, in some measure, to check the amount of interstitial deposit: hence, a section of scirrhous tumour presents a surface intersected by straight, or radiating white lines, especially in the breast, where the fibrous remains of the milk-ducts run in all directions from the nipple; the loculi, or interspaces, are small and somewhat angular; their contents are of a firm texture, of a pale, blueish-gray colour, semi-transparent, like horn, and glossy, and exude a small quantity of thin milky fluid when pressed or scraped. The entire mass is remarkably tough, hard, and heavy.

Small collections of greenish yellow colloid or jelly-like matter are sometimes interspersed through cancerous tumours. Sometimes, also, larger masses of a yellow, cheesy, or sebaceous material are to be seen; the latter is found to consist of the remains of the contents of the gland ducts, such as the salts of milk and fat, broken up epithelial cells, &c.; while the former is probably a form of degeneration *of the fibrous basis of the tumour* mingled with cells. Sebaceous matter and colloid

are found in both acute and chronic cancer, but the sebaceous is found in larger quantities in the acute, and the colloid more frequently in the chronic type among external cancers. The external characters of scirrhus *in situ* are those of a tumour, in which condensation of structure and interstitial deposit are progressing with a certain amount of antagonism. Compared with the encephaloid, it is small and less elastic, becoming finally of even stony hardness and weight. At first it may appear isolated and rolling among the neighbouring tissues, but it soon sends out processes which draw in and fix the fibrous structure of the integuments, fasciæ, or muscles near it. The skin becomes rough and seamed with lines, or indented in points: sometimes it has a hypertrophied appearance, such as it has when viewed through a pocket lens of low magnifying power. This is owing to cancerous infiltration, and is found generally in fat persons, the fibres of whose skin are not closely woven; such a cancer gets the name of lardaceous, the skin is dotted over with small granules of cancer; or it may be only of a waxy pallid hue, and deficient in elasticity; all these alterations of the integument are elements for an unfavourable prognosis. The tumour becomes fixed to the subjacent structures, and sends processes which can often be felt towards the neighbouring lymphatic glands. These at an early period are enlarged, and become the seat of cancerous deposits. It is a curious fact, of which no adequate explanation has yet been given, that engorgement of neighbouring glands is more common in proportion to the chronic nature of the cancer. You may find large masses of encephaloid isolated in the tissues and not affecting the lymphatics, while even a small scirrhous growth rapidly poisons all the neighbouring tissues of every kind.

Œdema of the skin in the vicinity is another symptom of advanced scirrhus. We see this in scirrhus of the breast, in which we have the arm and side hard and œdematous. Ulceration commences in different ways, not often by tension of the integuments, more by a crack or fissure, or by an excoriation in a fold of skin, where secretions, perhaps somewhat acrid, lodge and excite inflammatory ulceration; this is common in the breast around the retracted nipple. Sometimes a large portion sloughs off as in encephaloid, and from a similar cause, viz., inadequate supply of nutrition. In whatever way it commences, ulceration soon destroys all the less active and central parts, and leaves a foul irregular cavity, the depressed surface and elevated edges of which are hard, undulated, and inflamed. Cancerous deposit goes on in a constantly widening circle, and with rapidity proportioned to the inflammatory or excited action of the part. Ulceration follows in a somewhat narrower circle, and destroys the older parts of the infected tissues. A foul and copious discharge wastes day by day the strength of the patient, who, overcome by pain, at length falls into a hectic state, which puts a period to his misery. The pain of cancer is variable in degree, but always of a lancinating character. Sometimes it resembles the sudden dart of a fine needle at rare intervals; sometimes severe and constant pangs, as of the sharpest knife. There is another kind of pain complained of, when the tumour has been much disturbed by handling; this is of a deep, dull, aching character, and supervenes in an hour or two, lasting for the greater part of a day. The lancinating character of the pain is of value as a diagnostic symptom, when you are sure that your patient does not misapply the term, as is often the case. Other symptoms, which either belong or have been ascribed to cancer, will be considered, when we are treating on the differential diagnosis of cancerous and other tumours.

We shall now pass to *cancroid growths*. These are growths which possess a minute structure different from cancer, with external signs and symptoms more or less characteristic, and which resemble cancer in their clinical features, without being altogether so destructive. They hold a midway place between simple tumours and cancers. The former are mere redundancies, isolated hypertrophies; the latter are destructive interstitial deposits, destroying not merely by pressure, but by an inherent tendency to convert the neighbouring structures into their own substance.

Cancroid growths are as yet imperfectly known. *Anatomically* they appear to be more hypertrophic than interstitial; even the epitheliomata, when carefully studied, bear out this assertion. *Clinically* they resemble cancers, but are more slow of returning, or if they return rapidly are confined to the immediate neighbourhood of their *original seat, and are* accompanied with less waste of tissue and

less constitutional disturbance than cancers. This is the general rule of such growths. Individual cases occur of great virulence and rapid destruction of life, and of general infection in distant organs, either after or without operation, and relapses after the most complete removals are frequent sometimes at very short intervals, sometimes after the lapse of years.

The commonest form of cancroid is the epithelial tumour or *epithelioma*. This growth is found in all regions where mucous membrane and skin approach each other. It may be situated on the mucous membrane, the skin, or on both; it is also found on the skin in parts where moisture abounds, as in the genital organs; occasionally on the general cutaneous surface, as in that form of ulcer called the chimney-sweeper's cancer; never, according to Velpeau, in the female breast; and certainly very rarely in any gland as a primary affection. Its anatomical element is the common epithelial cell, arranged with an amount of regularity strikingly in contrast with the irregular disorderly grouping of the cells in cancer; this irregularity is only disturbed, when, by the accumulation of a great number of cells in a tube, follicle, or other cavity, those first formed are pushed into the centre; but a little care will always unravel the primary arrangement. When the growth occurs on mucous or moist surfaces, the rows of cells generally lie in parallel bead-like lines with marked regularity, and have a great resemblance in anatomical structure to simple warty growths. The characters of the epithelial cell are—small nucleus, small size and round shape of cell when first formed, with subsequent enlargement and flattening when brought nearer to the surface, so that it comes to be the largest of all cells. Add to this, great delicacy and transparency of both cell-wall and contents, and perishable nature of the entire cell, and you have sufficient marks by which to distinguish it from any other cell, whether the result of healthy or morbid action.—*Dub. Hos. Gaz., Oct.* 1, 1855, *p.* 257.

14.—*The alleged Cure of Cancer.*—M. Landolfi, chief surgeon of the Neapolitan army, has of late attracted much attention in Italy and Germany, having seemingly cured cancer by means of the topical use of chloride of bromine, in combination with several other chlorides. This success has produced such sensation as to induce the Emperor of the French to give the author six beds at the Salpêtrière Hospital, (where the insane and aged of the female sex are admitted,) to afford him a fair opportunity of proving the efficacy of the remedy. This is the right, practical, and sensible way of dealing with such questions. We are, in the meanwhile, bound to state that 'L'Union Médicale,' of May 1st, 1855, contains a letter from M. Leriche, of Lyons, who says that he has strong doubts about the actual *bonâ fide* cancer having ever been cured by the above-named application, as he has steadily used the chloride of bromine for ten months, in various cases of cancer, without having succeeded in warding off the fatal issue of this formidable disease.

The formula of the paste used by M. Landolfi is the following: Chloride of bromine, three parts; chloride of zinc, two parts; chloride of antimony, one part; chloride of gold, one part; powder of liquorice, sufficient to make into a paste. The principal agent is the chloride of bromine, which has lately been used by itself. Cancers of the skin, the epithelial variety, lupus, &c., are treated by a combination of chloride of bromine with basilicon ointment. M. Landolfi's view is to change a malignant ulceration into a simple one. For this purpose he formerly left a piece of linen spread with the paste as long as a fortnight upon the part, but now he uses imbricated pieces of lint similarly spread, and leaves them only twenty-four hours. The surrounding parts are protected by an ointment composed of one drachm of chloroform to an ounce of axunge. The author considers that the chloride of bromine acts, not only topically, but that the specific is absorbed and aids the cure. Hence he gives, as an adjuvant, a certain number of pills which contain a minute proportion of the chloride. When the pledgets spread with the caustic paste are taken off, after the above-mentioned twenty-four hours, a line of demarcation is observed which separates the altered from the healthy tissues. Bread poultices are then applied, or else lettuce leaves, or basilicon ointment, which should be changed every three hours, until the eschar is thrown off, which event *takes place from the eighth* to the fifteenth day.

Numerous experiments have been made in Italy and Germany, and some successful cases have been recorded. It should be added that there is much fairness about the proceedings; M. Landolfi does not choose the cases, is anxious to make the remedy extensively known, and publishes the unfavourable as well as the favourable results. The Committee appointed in Paris to report respecting the experiments at the Salpêtrière, is composed of the Physicians of the hospital, Drs. Moissenet, Cazalis, and Manec, assisted by MM. Mounier, Broca, and Furnari. This report will be an important document, as the diagnosis will no doubt be very carefully made; but the question of recurrence can only be solved by investigations spreading over several years.—*Lancet, June* 23, 1855, *p.* 632.

DISEASES OF THE NERVOUS SYSTEM.

15.—ON CEREBRAL AND SPINAL PARALYSIS.

By Dr. Marshall Hall, F.R.S., &c.

The irritability of the muscular fibre in paralytic limbs varies very much.

I think all who have experimented on this subject, have agreed in *one* conclusion: *the irritability is diminished in spinal paralysis*, or that paralysis which, from whatever cause (such is my definition of the term) excludes the influence of the spinal marrow.

It is in regard to cerebral paralysis that the difference of opinion has existed. I, with the exceptional cases to which I have alluded and which I myself discovered, have found the *irritability* in this case *augmented*, comparatively, at least, with that of the other limb, if not positively; I believe the latter, though *not* in the *degree* in which it is diminished in the other form of paralysis.

The interesting question is,—What is the explanation of the exceptional fact? For Le Gallois has a beautiful paragraph,—

"However opposed results may appear, we must remember, that of two facts, both well-established, one can never exclude the other, and that the apparent contradiction depends on some intermediate element which has escaped us."

What is the "intermediate element" in regard to the question before us, in regard to which there is, as in all such cases, if the inquiry be pursued, a *discovery* to be made?

I believe I have made that discovery.

It consists in the fact that all cases of *hemiplegia* are *not* cases of *cerebral paralysis*.

These are not convertible terms. The very title, therefore, of Dr. Reynolds' admirable paper is objectionable. Cerebral paralysis is *one* thing; hemiplegia, *two* or more!

For example: In a severe case of hemiplegia we meet with *two* series of phenomena. The first consists in paralysis of volition in the arm and leg of the side opposite to that of the lesion; this is *cerebral* paralysis. But there is a second. There are frequently stertor and dysphagia; these are symptoms of *spinal* paralysis. Further, the arm and leg themselves are sometimes so affected by spinal *lesion*, or by spinal *shock*, as to be at once affected by *cerebral* and by *spinal* paralysis. In such cases the phenomena of reflex action, and not the phenomena of reflex action only, but the irritability must needs be impaired, according to the *law* which I have discovered.

This state of things becomes chronic. These severe and chronic cases, amongst the poor, are consigned to the workhouse. It is in the workhouse, therefore, that we meet with these *exceptional* cases chiefly.

In my first experiments my patients were chiefly private patients, and I particularly selected cases of distinct, but not too severe character—of moderate, but not absolute loss of voluntary power, and I only met with *one* exception to the law of augmented irritability in cerebral paralysis.

In my subsequent experiments, I made no selection of cases, and there were then *several* exceptional *cases*.

In my last experiments already alluded to, made in the institution in which Dr. Reynolds made his, again I met with *several* exceptional cases, although the number of my experiments was small, the fact which I mentioned to Dr. Reynolds, with the request which I have already noticed.

As to this idea of *exception*, although we use the term, I need scarcely observe that it is utterly erroneous. There *can* be no exception to a physiological law. *An exception is an error—an ignorance.*

Thus there can be no exception to the laws—1. That in pure cerebral paralysis there is augmented irritability; 2. That in spinal paralysis there is diminution of this irritability.

But when we speak of hemiplegia, we use a term which does not always signify the same thing; which, in fact, sometimes signifies *cerebral*, and sometimes *spinal* paralysis, and the phenomena are in accordance with the *things*, not with the *word*.

The first error committed in this investigation, consisted in the wrong choice of an instrument. It was one of too great violence. The *power* and not the irritability of the muscles was tested.

The second error consists in the wrong choice of terms and of cases. Hemiplegia is sometimes purely cerebral paralysis: sometimes combined cerebral and spinal —a fact, in some degree new, resulting, as usual, from a new course of inquiry.

Cleared from all sources of ambiguity in the mode of experiment and in the use of terms, I repeat that my two laws in regard to the condition of the irritability of the muscular fibre in paralytic limbs remain—

1. In pure cerebral paralysis—that in which the influence of the cerebrum *alone* is removed—there is augmented irritability.

2. In spinal paralysis—that in which the influence of the spinal marrow is *also* removed—there is, and in a far greater degree, diminished irritability.

As corollaries from these facts become laws, I may repeat that the difference in the irritability of the muscles of the healthy and paralysed limbs in cerebral paralysis is the difference between muscles moved by volition, and muscles unexcited; whilst the difference in the irritability of muscles of healthy limbs and limbs affected by spinal paralysis, is the absence or presence of the very *source* of this irritability, and of the other physiological conditions of these muscles. The difference in the *degree* of augmentation in the first case, and of the diminution in the second, is, therefore, perfectly intelligible to all.

To these statements may still be added the conclusion, that, duly employed, the galvanic current becomes a diagnostic—and it has often been a *corrector* of the previous diagnosis—between cerebral and spinal paralysis.

It is trying to think that after such distinct annunciations of the truth, we shall next read of paralysis—the *cause* of which is *seated* in the cerebrum, or in the spinal marrow, respectively, as synonymous with cerebral and with spinal paralysis. Whereas a disease *seated* in the cerebrum may *extend its influence* to the spinal marrow, and produce spinal paralysis; and a disease not seated in the spinal marrow at all, but in the course of a spinal nerve, may, and does also, produce spinal paralysis, whilst a disease seated in the spinal marrow may produce cerebral paralysis.

We must accurately define, and steadfastly retain, our terms.

For the present I will merely resume the cases thus:

In Cerebral Paralysis the affection is so *limited* as to exclude the influence of the cerebrum and cerebellum.

Hemiplegia, even of cerebral origin, if the disease be not *limited*, either in structure or influence, to the cerebrum and cerebellum, is *not* cerebral paralysis: it is, *pro tanto*, spinal paralysis; there are, at the least, two cases of this kind.

The *pressure* or other injury in regard to the medulla oblongata, denoted *at first* by stertor or dysphagia, may so continue as to induce and leave a form of spinal paralysis as these subside; the limb may be rigid (*spasmo-paralysis*) and deformed.

The *shock* inflicted on the spinal centre may be such as never to be recovered from; the limb is then flaccid.

The simplest case of cerebral paralysis is that arising from *division* of the spinal marrow; all the limbs situated *below* this division are affected with *cerebral paralysis.*

Spinal Paralysis arises from any lesion, seated in any locality which *excludes* the influence of the spinal marrow. It may therefore be seated—primarily or secondarily in *any* part of the spinal marrow, whether 1, within the cranium; or 2, within the spinal canal; or 3, in *any* part of the spinal nerves.

Recently, M. Duchenne has assumed that there are two kinds of *general* paralysis; one, in which the intellectual faculties are impaired; the other, in which there is no danger for those faculties; and that galvanism, as I have stated in regard to cerebral and spinal paralysis, affords a means of diagnosis. I suppose that as in the former the paralysis is cerebral, so in the latter it is spinal. M. Duchenne seems to have come round to my opinions, the difference now being, after all, as to whether the irritability in cerebral paralysis is persistent only or positively augmented, a question which the trials of Dr. Reynolds would seem to set at rest, at least in regard to a certain number of cases. M. Duchenne concludes—at a discussion at the Société de Médecine in Paris—by stating, "mon opinion sur ce sujet diffère peu, on le voit, de celle du physiologiste Anglais."

There is a mode of investigation which I much wish to suggest. Disease is generally complicated. Experiment may be simple. I would propose to institute cerebral and spinal paralysis, pure and simple, on the dog, and then to experiment with the simplest form of galvanic influence at leisure.

The first part of the experiment, as of most other physiological experiments, may be performed under the anæsthetic influence of chloroform. This last suggestion I make in the cause at once of our own science and of humanity.

One great result has flowed from the investigation into the varied condition of the irritability of the muscular fibre in paralytic limbs—the fact, that *hemiplegia* is sometimes *cerebral*, sometimes *spinal paralysis*—sometimes *limited* to the exclusion of the influence of the cerebrum, sometimes *extended* to the exclusion of the influence of the spinal marrow.

The distinction which I have established in regard to these two forms of paralysis, to which in this paper I add a third, is anatomical and positive.

When physicians speak of *hemiplegia*, they in reality use a term the signification of which has reference merely to a *symptom;* and that symptom may have a double or even a triple origin.

If hemiplegia affects and excludes the influence of the cerebrum only, the case is, I repeat it, cerebral paralysis; but if it affects or excludes the influence of the spinal marrow also, as it does in some severe cases, it is spinal paralysis; it will constitute one of those cases which, from ignorance of their real nature, and from our error in viewing the terms cerebral paralysis and hemiplegia as synonymous and identical, have been regarded as *exceptional* cases.

These exceptional cases are rare amongst the milder cases of private practice; amongst the severer cases, consigned to the workhouse, they may amount, as in the subject of Dr. Reynolds' inquiries, to three-fourths of the whole number of cases.

If our terms be once well defined, all ambiguity is removed; cerebral paralysis excludes the influence of the cerebrum only; spinal paralysis that of the spinal marrow also. The characteristics of each of these, when they are themselves distinct, are as fixed as the laws of physic.

To cerebral and spinal paralysis I must add a *third*—viz., *ganglionic* paralysis. This paralysis is excluded in pure cerebral paralysis; it is included in spinal paralysis.

Thus: in cerebral paralysis the muscles become atrophied; in spinal, in reality also ganglionic, paralysis, they become *hetero*-trophied, if, for distinction, I may use that term. I have long regarded the ganglion on the posterior roots of the spinal nerves as parts of the true ganglionic system.

Thus again: in cerebral paralysis the irritability of the muscular fibre is *augmented;* in spinal paralysis it becomes gradually more and more *diminished;* in ganglionic paralysis, if complete, it may become *extinct.*

In both an anatomical and in a physiological sense, the muscles in cerebral paralysis remain muscles, and their irritability, being unexhausted by the stimulus of volition, is, *pro tanto*, augmented, compared with that of the healthy limbs; whilst in spinal paralysis they gradually lose their muscular power, and in ganglionic paralysis *they cease to be muscular*, either in structure or in tone.

tion. In certain cases, as M. Cruveilhier and M. Duchenne have shown, the muscular fibre undergoes the fatty degeneration which has recently attracted so much attention.

After these explanations and definitions, I think our investigations may proceed without any of those apparent exceptions and contradictions which have so much obstructed our progress. We must bear them continually in mind; and we must distinguish between true irritability and mere *force*, and the results will be uniform; (unless, indeed, some other element of complication exist, still undetected;) and all difference of opinion, so discreditable to physiological and medical science, will cease.

I will now, for the sake of still greater distinctness, throw the subject into a tabular form.

I.—*In Cerebral Paralysis—*
1. *The Reflex Actions,*
2. *The Influence of Emotion, and*
3. *The Influence of Strychnine,*
4. *The Irritability,*

are more noticed in the paralytic than in the healthy limbs;

II.—*In Spinal Paralysis—*
1. *The Reflex Actions,*
2. *The Influence of Emotions,*
3. *The Influence of Strychnine are extinct, and*
4. *The Irritability diminished.*

III.—*In Ganglionic Paralysis—*
1. *The Structure, and*
2. *The Functions may be alike destroyed.*

Cerebral paralysis may exist alone. Spinal paralysis of course *implies* cerebral paralysis. Ganglionic paralysis may exist with or without spinal muscular paralysis. In division or disease of the trifacial nerve we have ganglionic paralysis, and in a case which I have formerly published, in which the digital nerve being injured, the nail ceased to grow as formerly. But as spinal paralysis implies cerebral paralysis, it also implies ganglionic paralysis. I have at this moment an interesting patient, who, from inflammation of the sciatic nerve from cold, has lost the power of the limb; the muscles are absolutely unaffectible by galvanism, atrophied, heterotrophied, and, I suppose, changed into fat. By restoring the healthy condition of the *nerve*, will the morbid change of structure undergo restoration? This is a question never yet agitated. It will require much observation and—*experiment*, to determine it satisfactorily; and I propose shortly to add to the present brief sketch some ample details.—*Lancet, Sept.* 22, *p.* 277, *and Sept.* 29, 1855, *p.* 295.

16.—RAMOLLISSEMENT OF THE BRAIN, AND ITS DIFFERENTIAL DIAGNOSIS FROM CEREBRAL HEMORRHAGE.

By Professor Trousseau.

The present medical generation believes that ramollissement and cerebral hemorrhage are two affections characterised by such well-marked symptoms, that it is impossible to confound the one with the other. It is established scholastically that, when an individual, whether predisposed or not, suddenly presents the following morbid phenomena, viz., vertigo, loss of consciousness, and paralysis of one of the sides of the body, he is the subject of hemorrhage, on the side of the nervous centre opposite to that on which the paralysis has manifested itself. On the other hand, when vertigo, formication, and cramps have existed for more or less time, and paralysis has been gradually established, the lesion is regarded as a ramollissement. As a general rule this is true, but so frequent are the exceptions, that we are unable to found our recognition of the nature of the lesion either upon the mode of invasion or the order of the succession of the symptoms. Thus, while we sometimes observe paralysis, gradually established after precursory symptoms, arises from sanguineous apoplexy, in other cases a sudden attack of *paralysis may be the consequence* of ramollissement.

This woman, aged 42, went to bed, early in February, quite well, and on waking she found that the left side, and especially the arm, were not so strong as the same parts on the right side. Alarmed, she dressed herself with difficulty, and repaired to a doctor, who bled her. While the blood still flowed the patient lost her consciousness, and when she came to, her left side was found paralyzed, and she had to be carried home. The catamenia, which were some days behind their time, re-appeared on the day of the accident. The symptoms of paralysis gradually diminished, and at the next menstrual epoch only a little numbness remained. On the day the menses re-appeared, the woman was again suddenly seized with paralysis of the left side, and she was then brought to the Hospital.

The following was her condition on admission. She was of a feeble lymphatico-nervous constitution, having the muscular system little developed, and but little *embonpoint*. The left arm hung by her side, the fore-arm was semi-flexed, and the hand in a state of forced pronation, the thumb and fingers being forcibly flexed upon the palm. She could perform no movement of her arm. The leg was less paralyzed than the arm. She could still flex the thigh on the pelvis, and the leg on the thigh, but she could not raise her heel from the bed. All the left side of the face was paralyzed and puffed out, the labial commissure being drawn to the right side, but no deviation occurring to the tongue. The bladder was paralyzed, the catheter being required until death; and the stools came away involuntarily. Sensibility remained unimpaired, and neither vision nor hearing was impaired. Lastly, the understanding was unclouded, the patient relating her history with the greatest clearness.

For some days after her admission the symptoms of paralysis seemed to diminish. She became enabled to execute some movements of the arm, and the urine passed from the catheter with a jet. So she continued until the catamenia re-appeared, when her intellects became enfeebled, and all voluntary motion of the arm or leg was impossible. In the night of the 19th April these parts were seized with clonic convulsions; the face became red and injected, the pulse full and frequent, and the skin hot and sweating. On the morning of the 20th she was found in the deepest coma, with stertorous breathing. All the right side, the motions of which had, till then, been preserved, was in a complete state of resolution. She died in the night.

Autopsy 36 hours after death.—The membranes of the brain were highly injected, and especially on the right side; and the pia mater was firmly adherent to the brain. In one of the anfractuosities of the middle lobe, in the vicinity of the fissure of Sylvius, a notable quantity of pus was found. The convolutions of the anterior lobe, on the same side, were softened especially at the base, and the cerebral substance was carried away by a stream of water. In the central parts two points of white ramollissement were found, the one in the optic thalamus and the other in the corpus striatum. Nowhere could any hemorrhagic effusion be detected, not even those little sanguineous sugillations which are regarded as indicative of capillary hemorrhage. The colour of the cerebrum had undergone no change at the level of the softened points, and the parts exhibited in no wise the yellowish tint attributed to hemorrhagiparous ramollissement.

What ought to be our diagnosis in such a case as this? Would not the following be the classical one? Hemorrhage had taken place in the cerebral substance of the right side, which was renewed at the recurrence of the menstrual epoch. Lastly, in accordance with the ideas established by Lallemand, around this hemorrhagic deposit the cerebral substance became inflamed, thus explaining the re-actional phenomena which terminated the scene. This was the diagnosis indicated, and the one which, in the great generality of cases, would have proved true. A strong motive for believing in the existence of sanguineous apoplexy was that these accidents occurred every time in the midst of the hemorrhagic molimen of menstruation. I found myself inclined towards the common opinion, although I felt that there were powerful reasons for suspending my judgment—reasons that I derived from the nature of the paralytic accidents themselves. With a most complete hemiplegia as regards movement, the general sensibility, the senses, and the intellect were preserved unimpaired. Now, I remember to have heard Recamier teach, and I have since observed it to be so myself, that when there is dissonance among *the symptoms they* are due to ramollissement, while, on the

other hand, we must conclude that a hemorrhage exists when there is a consonance in the paralytic phenomena. That which in our case seemed a reason for suspending the judgment, viz., the hemorrhagic molimen that preceded the paralysis, only adds to the force of the distinction laid down by Recamier; and it remains demonstrated, at any rate, that a sudden paralysis of a portion of the body may be the result of a ramollissement.—*Med. Times and Gaz., June* 30, 1855, *p.* 639.

17.—ON EPILEPSY.

By Professor Trousseau.

Diagnosis from Hysteria.—I will suppose you observe one young girl the subject of slight vertigo, which scarcely lasts for three seconds, and then another rolling about on the ground in every direction, uttering cries, breaking every object near her, and requiring to be held down by four or five persons—men by preference. It might seem to you that the first had little the matter with her, and that the other was very ill. Not so; the first is the dog that bites without barking, the other the dog that barks without biting.

In hysteria there are usually precursory symptoms. The subjects of it complain of a sense of suffocation, of a fulness about the stomach, an indefinable nervous irritation, and of the sensation of a ball rising into the throat. During the attack the movements are extensive, powerful, and irregular, both sides of the body participating. Considerable change of place results, and much force is required in order to restrain them. There is much noise and little danger; and the scene terminates with a peculiar cough, sobs, tears, and the emission of aqueous urine. The epileptic is a far more quiet patient. Where he is struck down there he remains motionless, and if it should chance to be in the fire he may be burned to ashes. The primary tonic contraction is replaced by clonic contractions, small in extent; there is an amount of insensibility never observed in hysteria, and at the end of the attack peculiarities are noticeable that have already been described.

Diagnosis from Eclampsia.—As to all the phenomena proper to the attack, these are identical; so that we may call eclampsia epilepsy, wanting the relapse; and epilepsy, eclampsia with relapse. This is true only as regards the form of the affections, for between their nature there is as much difference as there is between gout and swelling of the great toe from a prick. In children we frequently observe eclampsiform convulsions, and they have been regarded as symptomatic of rubeola, variola, and scarlatina, &c. I think that is somewhat of an error; nevertheless, at the onset of a rubeola, &c., the child has a slight convulsion preceded by a little cry, and throwing back of the head; and a minute after, he returns to himself, and takes the breast. Such convulsions usually cease of themselves, and if treatment be adopted for them death will usually be the result. If the convulsive state is reproduced we usually observe what the nurses call "inward convulsions." The infant is panting, closes and reopens its eyes, a slight guttural *râle* is heard, and the child becomes red and goes off to sleep again,—it is an epileptic vertigo.

However much the convulsions observed during the attack of epilepsy and eclampsia may resemble each other, their continuousness in the latter presents a ray of light for the diagnosis. The attack of epilepsy is of short duration, and when the attacks succeed each other so rapidily that there is not time enough for the patient to recover from the stupor of one before another comes on, we still observe that, whenever the carus commences, the muscles cease to be convulsed, and fall into a state of complete resolution. Such cessation is not observed in eclampsia. During one, ten, twenty, or thirty hours, the patient remains with the eyes convulsed, the head thrown back, and the limbs rigid, without any period of carus with resolution manifesting itself; so that we may define eclampsia as (and it is an excellent sign of distinction) a continuous tonic or clonic convulsion. Nevertheless, it does occur, though very exceptionally, that epilepsy assumes this continuous form in children. It then depends upon some cerebral lesion, as, for example, tubercles, which become the cause of a cerebral phlegmasia, amidst which the convulsions assume the character of continuousness characteristic of eclampsia.

The two affections are, indeed, so nearly allied to each other, that we too commonly see eclampsia transformed into epilepsy. Thus, we find children suffering from frequent convulsions during dentition; then, again, on the occurrence of some disease, as rubeola, visceral phlegmasia, &c.; after some years these recur from some insignificant cause, and at last without any cause at all. These children, at first eclamptic, have become epileptic. Moreover, in the families of epileptic patients, convulsions or eclampsia are of frequent occurrence. As a practical rule, when you see convulsions in a child accompanying dentition or an acute affection, do not be needlessly uneasy; but when they occur towards the fifth or sixth year from the slightest cause, and especially without any cause at all, you should entertain the greatest fear that the child is epileptic.

Nature of the Disease.—What is epilepsy? This is a question it is very difficult to reply to in a categorical manner. It is ranged among the Neuroses, a class of diseases in which we find affections widely separated from each other as regards their importance and gravity, but which are united together by the common tie that they are dependent upon a special condition of the nervous system, in which pathological anatomy demonstrates nothing or next to nothing. When a woman is suddenly seized with a fit of hysteria, we know well that she has no organic lesion of the encephalon, some congestion being the utmost to be expected. When in the equatorial regions, tetanus carries off children after slight wounds, pathological anatomy discovers nothing. When, after a surgical operation, your patient dies, the subject of delirium tremens, do you suppose minute necroscopic researches will explain to you the cause of that condition? When we observe eclampsia attacking children at the onset of an eruptive fever, we are certain that, one hour before the appearance of the convulsion, there was no disturbance, no appreciable lesion of the nervous system; and we are certain that the eclampsia has left no traces after its disappearance. Still there must be something there, but what that something is we know not.

Many of these neuroses are under the dependence of an accidental pathological condition: thus, eclampsia may be dependent upon albuminuria, and the convulsions of children on dentition, &c. In epilepsy there are two kinds of conditions concerned in the production of the attacks, the permanent and the accidental. These latter have really no influence, save in relation to the former, which constitute the diathetic state, and maintain the individual always in such a condition that, with or without occasional cause, he may be seized with a fit of epilepsy. We may often say of two men, in one of whom the skin appears healthy, and in the other the articulations are quite free, that the first is dartrous and the other gouty, because we have known the one suffer from cutaneous eruptions and the other from attacks of gout; and this is correct, for they do not escape from the necessities of the diathesis, because they do not then exhibit its effects. So we term a man an epileptic even when the attacks are absent. The diathesis remains none the less with its character of fatality, whether the manifestations occur on the skin, in the joints, or consist in nervous disorders. The influence of this constitutional condition does not, however, exclude that of local causes, which indeed may provoke manifestations. But it is always the diathetic condition that determines the form of the accidents. Thus, supposing two patients suffer from a syphilitic or tubercular cerebral affection, if one of these possesses the epileptic diathesis, the symptoms will be those of epilepsy, while the other will exhibit the ordinary symptoms of the cerebral affection.

Treatment.—Although the reputation of incurability attaching to this disease is but too generally justified, this is not invariably the case. In endeavouring to relieve it we must, firstly, try to ascertain whether any occasional cause exist, and direct our means against this. Several cases are on record in which epilepsy, induced by tertiary syphilis, has yielded to anti-syphilitic remedies. A case of this kind occurred in M. Trousseau's own practice, in which, after various means of combating the epilepsy had been tried in vain, the existence of severe nocturnal pain on one side of the head, fortunately led to the supposition of the possibility of intra-cranial syphilitic depositions, and to the cure of the patient.

Secondly, when no occasional cause to which we can refer the manifestations of the disease, is discoverable, we must attack the manifestation itself, just as, in neuralgia of unknown *origin, we attack the* element pain. Valerian, so much praised

by Tissot, for this purpose, constantly fails, as do indigo, Prussian blue, &c. The salts of copper have, perhaps, been somewhat more successful. M. Herpin, a very estimable physician, declares he has obtained good results from the oxide and the valerianate of zinc, but Esquirol had already tried these means without success, and I have been no more fortunate than my master. M. Debreyne, physician to La Trappe, and M. Bretonneau, undertook, twenty-five years since, in two different parts of France, a series of patient researches into the results furnished by belladonna, already recommended by Storck; and founding their opinion upon some cases which seemed conclusive, proclaimed the superiority of this therapeutical agent; unfortunately, such superiority is only relative. For twelve years I have employed it, having always had under treatment from eight to ten persons. In some of these patients the belladonna has completely failed, in others it has produced some melioration, while, in some cases, these being, it is true, the smallest number, the greatest advantage has been derived from its use. I have so treated 150 patients, and of this number 20 have been cured, if they do not even yet relapse; and M. Blache has employed it during the same period in his large private practice, with a like proportion of success and failures.

The mode of administration plays a great part in this medication, at which we need feel no surprise, as this is the case with the most powerful specifics. Thus Torti declared, with justice, that a pound of bark, administered without method, would not cut short a fever that two ounces, properly given, would cure. Pills are to be formed, composed of extract and of powder of the roots of belladonna āa one-seventh grain. A pill is to be given every night for a month, and two pills every night during the second month. For the third month, three pills, and for the fourth month, four pills are required; the entire number, whatever this may be, always being taken as one dose. If we find the patient is very susceptible to the action of belladonna, we must only increase the dose every sixtieth day. During all this time, the family must keep a register, in which are entered the number and nature of the fits or vertigos; and if by the end of a year you have obtained a sensible diminution in the number and duration of attacks, you may reckon with certainty on the cure, providing the medicine be continued from two to four years, the dose not being increased after the physiological action of the drug is sufficiently manifested. We must not be surprised at this lengthened period of treatment, for such is necessary in almost all chronic affections. Before ceasing its administration entirely, and especially if it is borne with difficulty, it may be suspended for two or three, and then for four months, resuming it for a month, and in a diminished dose.—*Med. Times and Gazette, Aug.* 25, 1855, *p.* 181.

18.—UNSUCCESSFUL RESULTS IN THE TREATMENT OF EPILEPSY BY THE COTYLEDON UMBILICUS.

By Dr. PEACOCK, St. Thomas' Hospital.

Such widely-different and even contradictory reports have been published respecting the power of the cotyledon in cases of epilepsy, that we deem the recording of all evidence respecting it important. No large series of trials of it has been made in any of the London hospitals, but the four following cases, which have just been treated by it in St. Thomas's, constitute a quota of fact which must not be neglected. In all the treatment was very carefully conducted, and, as the subjoined statements respecting them are necessarily very much abbreviated, it may be well to state, that the detailed notes show conclusively that in all the disease increased rather than otherwise under it.

Case 1.—*Liability to Epilepsy for six years—Two months' trial of the Extract of the Cotyledon.—No benefit.*—Thomas Byrne, aged 13, was admitted as an in-patient on Oct. 4. He was a boy of somewhat heavy aspect, and had been subject to epileptic fits for six years. The occurrence of the paroxysms had been very variable as to frequency, sometimes being daily, at others being absent for periods of three weeks or more at a time. Giddiness was usually the symptom premonitory of an attack; sometimes he would utter a loud cry, and fall down quite

unconscious; at others the loss of sensibility would be only partial. His appetite was good and bowels regular.

Dr. Peacock commenced the treatment by the exhibition of sulphate of zinc in two-grain doses, in infusion of valerian, three times daily. The remedy was gradually increased in dose until it amounted to a scruple, and was continued up to Nov. 21. No benefit was apparent, and during the last week of the treatment the fits had been of daily occurrence. A fortnight's interval having been allowed without medicine, the cotyledon was prescribed on Dec. 12. It was first given in two-grain doses, then in four, and ultimately in twelve, thrice daily. The fits continued throughout its use to recur just as before, and after a patient seven weeks' trial it was abandoned, and the lad allowed to return home, being in the same condition as when admitted.

Case 2.—*Epilepsy.—Three months' trial of the Extract of Cotyledon.—Aggravation of Symptoms.*—William Parnell, a small, delicate boy, aged 9, came first under treatment as an out-patient on Sept. 14, 1854. He was stated to have had fits when he was five weeks old. He did not again suffer for three or four months, and continued occasionally to have them till he was three years of age. He then had them more frequently, and had continued subject to them ever since. They generally occurred about once a fortnight, and when he had the attacks they continued to recur at frequent intervals for ten days, when they again ceased for an interval of about a fortnight. When about to be seized he felt a peculiar sensation in the epigastrium, which rapidly extended to the throat, and he then became insensible and convulsed. He also suffered from itching at the anus. The treatment then adopted consisted in the exhibition of the sulphate of zinc in the infusion of valerian. The dose of the zinc was at first two grains, three times a day, but during the course of two months it was gradually increased up to fourteen grains, in which quantity it occasioned nausea, and had to be discontinued. The effect seemed to have been, on the whole, beneficial; the paroxysms which at first had averaged eight or nine daily having diminished latterly to two or three. In consequence of the boy complaining of irritation about the anus, worms had been suspected, and a dose of turpentine given, but without the expulsion of any.

The use of the zinc was discontinued on Nov. 21st, and that of the cotyledon commenced on Dec. 7th. The latter remedy was continued in four-grain doses, three times in the day, until January 4th, when its dose was increased to six grains. No obvious effect had been produced by it.

During the week ending the 11th, he had fourteen fits. The cotyledon was increased to eight grains. In the week ending the 18th, had eight fits, and in that ending the 25th seven fits. The cotyledon was given in the dose of ten grains. In the week ending February 1, he had five fits. The cotyledon was raised to twelve grains. In the following week he had seventeen fits. The dose of the cotyledon was continued on the 15th. He had had only one fit during the previous week. The cotyledon was now discontinued. No improvement had taken place during its use, nor had any physiological action been manifested. The only symptom observed was some pain and difficulty in making water, but this had previously been noticed, and continued after the drug was discontinued, though to less and less a degree than when it was taken. His mother thought he was better while under the use of the sulphate of zinc, and therefore, after a month had elapsed, during which he was left without any specific treatment, and the fits continued to recur much as before, the sulphate of zinc was again given, and continued from the 22nd of March to the 24th of May, the dose being increased during this time to the extent of eighteen grains three times a day, but without any material alteration. He then ceased attending.

Case 3.—*Four years' liability to Epilepsy.—Slight benefit from the Sulphate of Zinc.—Three months' trial of the Cotyledon.—No benefit.*—W. C., aged 15, was admitted an out-patient of St. Thomas's Hospital, under the care of Dr. Peacock, in the month of November, 1854, suffering from epilepsy. It was stated that he had had fits during infancy, but they had ceased and he continued free from them, though suffering from "fulness of blood in the head," till four years before the time at which he applied at the hospital. He generally had from five to seven attacks each week, and had occasionally had as many as fourteen, but sometimes he was entirely free from them *for intervals of* from three to six weeks, and they then

recurred more numerously and severely than usual.' He stated that he felt dizzy for a minute or two before the fits came on. He had a fatuous expression of countenance, spoke hesitatingly, and had a large head. After having taken some aperient medicine he was directed to take the sulphate of zinc in infusions of valerian, three times a day, commencing with doses of two grains and gradually increasing them to fourteen grains. On the 22nd of March, 1855, though he had the fits somewhat less frequently and severely, he had experienced no decided benefit; he was, therefore, directed to take the cotyledon in doses of two grains, three times daily. On the 29th he had had only one fit during the previous week, and the cotyledon was increased to four grains. In the week ending April the 5th he had two fits. The cotyledon was directed to be given in doses of six grains. In the week ending April 12, he had been entirely free from the fits; the cotyledon to be given in doses of eight grains. In the following week he had four fits. The cotyledon was increased to ten grains. In the week ending April the 26th he had three fits, and one of these was stated to have been more severe than any which he had had since the commencement of his attendance at the hospital. The cotyledon was directed to be taken in twelve-grain doses. In the week ending March the 7th he had seven fits, all unusually severe. The cotyledon to be given in doses of fifteen grains. On May the tenth he was stated to have had four fits during the previous week, two severe and two slight. To take twenty grains of the cotyledon for a dose. In the weeks ending May the 17th, 24th, and 31st he had no fits, and the cotyledon was increased, first to twenty-five and then to thirty grains, three times daily; but it was afterwards ascertained that these doses were only taken for four or five days during each week, when, in consequence of the supply being defective, he was without any medicine for the other two or three days. In the week ending June the 7th he had two fits, and in that ending June the 14th nine fits, though during the whole of this time he had been taking half a drachm of the cotyledon three times a day. He then stated he did not consider himself any better, and ceased attending. During the time he took the cotyledon his bowels were generally confined, so that he required occasional aperients; his appetite was at all times defective, but he digested food fairly and had no pain, sickness, dyspnœa, or other symptom which could be referred to the action of the remedy.

Case 4.—*Recent Liability to Epilepsy.—Three months' treatment by the Cotyledon.—No benefit.*—Edward Pugh, aged 13, was admitted an out-patient of St. Thomas's Hospital under the care of Dr. Peacock, on the 4th of January, 1855. He was a pale delicate-looking boy, and suffered from difficulty of breathing, cough, and other symptoms of affection of the chest. During the first week after his attendance he had five decided attacks of epilepsy, and it was then ascertained that he had for some months been subject to sudden fainting-fits, and had always been in the habit of "working his face about." In the week ending March the 1st he had five fits, in those ending March 8th, 15th, 22nd, and 29th, nine, fourteen, seventeen, and four fits respectively. During this time he had been taking quinine and iron, with an anodyne for the relief of the cough. On the 29th of March he was directed to take four grains of the cotyledon three times daily. In the following week he had thirteen fits, one very severe, lasting two hours; the cotyledon was increased to six grains. In the week ending April 12th, he had eleven fits; the cotyledon was directed to be given in doses of eight grains. In the week ending April 19th the fits were ten in number; ten grains of cotyledon were to be taken for a dose. In the week ending the 26th he had seven fits; the cotyledon was increased to twelve grains. In the week ending May the 3rd he had five fits; fourteen grains of cotyledon were directed to be taken. In the week ending the 10th he had four fits; the cotyledon to be increased to eighteen grains. In the following week he had two fits, and the dose of the remedy was raised to twenty-two grains. In the week ending May 24th he had three fits; the dose of cotyledon to be twenty-five grains. In the week ending May 31st he had five fits, and in that ending June 7th, ten fits, the dose of cotyledon being continued at twenty-five grains. In the last week the fits were of unusual severity, and in some of them he continued two hours. The dose of cotyledon was increased on June 7th to 3 ss., and in the following week ending June 21st he had six fits. After this, as there was no apparent remedial power exerted by the drug, it was discontinued and he *was placed upon the oxide* of silver. In the three following weeks he had six

fits, one fit, and ten fits respectively. During the time he took the cotyledon he required occasional aperients, but no other obvious symptoms resulted from its use.

The extract used in the above cases was proposed by Messrs. Pigeon, and the dose usually exhibited was from 3 to 6 grains three times daily. In all the cases, the greatest care was taken to detect any effects which might result from the use of the medicine, and in none were any symptoms observed which could be referred to its action, though, in the last two cases, the doses employed were very large, and the medicine was tried for several weeks. In one case, the increase of the dose corresponded with a temporary improvement in the patient, by being for three weeks without any fit, though generally they had occurred in greater or less number every week: but a perseverance in the use of the medicine showed this improvement was only coincident, the fits again recurring as frequently and as severely as before; and it was further ascertained that similar cessations had previously been observed for even a longer period. In the three cases, which had before been treated with the sulphate of zinc, the patients and their friends all considered that they were better while under that treatment than when the cotyledon was exhibited.—*Med. Times and Gaz., Aug.* 11, 1855, *p.* 133.

19.—NEW METHOD OF TREATING NEURALGIA BY THE DIRECT APPLICATION OF OPIATES TO THE PAINFUL POINTS.

By Dr. Alexander Wood.

[It is well known that morphia has for some time been employed endermically in these cases, by blistering different points in the course of the nerves, and dressing the blistered surface with morphia ointment: this method will often succeed; but still if the narcotic can be applied more directly to the nerve affected, it will be attended with corresponding advantages.]

Having occasion, about the end of 1853, to endeavour to remove a nævus by injection with the acid solution of perchloride of iron, I procured one of the elegant little syringes, constructed for this purpose by Mr. Ferguson of Giltspur Street, London. While using this instrument for the nævus, it occurred to me that it might supply the means of bringing some narcotic to bear more directly than I had hitherto been able to accomplish on the affected nerve in neuralgia. I resolved to make the attempt, and did not long lack opportunity.

Miss ——, an old lady, who had long laboured under gastric and nervous symptoms, had suffered severely for four days from cervico-brachial neuralgia. This lady had the idiosyncrasy of not being able to take opium. Of this she had warned me many years before, when she first came under my care, and I consequently never prescribed it for her; however, once, when she was seen with me by the late Dr. J. H. Davidson, he, disbelieving her former experience, prescribed opium, with the effect of bringing on a severe fainting fit.

The narration of her case may date from Nov. 26th. She had not been able to sleep for the three previous nights from the violence of the neuralgic pain, and was quite exhausted with severe suffering. The usual internal remedies, with the exception of opium, had been tried, but without the least alleviation of her agony. Under these circumstances, I resolved to put in practice the plan which I had so long resolved in my mind.

Accordingly, on Nov. 28th, I visited her at 10 p. m., to give the opiate the benefit of the night. Having ascertained that the most tender spot was the post clavicular point of Valleix, I inserted the syringe within the angle formed by the clavicle and acromion, and injected twenty drops of a solution of muriate of morphia, of a strength about double that of the officinal preparation.

In about ten minutes after the withdrawal of the syringe the patient began to complain of giddiness and confusion of ideas; in half an hour the pain had subsided, and I left her in the anticipation of a refreshing sleep.

I visited her again about 11 a. m. on the 29th; was a little annoyed to find that she had never wak*ened; the breathing also* was somewhat deep, and she was roused

with difficulty. Under the use of somewhat energetic stimuli, however, these symptoms disappeared, and from that time to this the neuralgia has not returned.

The result of what has been stated proves satisfactorily—

1st, That medicines are more rapidly absorbed by some tissues than by others.

2nd, That the stomach is by no means the most rapid way of introducing medicines into the system.

3rd, That the cellular tissue has a great power of absorption.

It has been further shown by Dr. Christison, that the whole amount of difference is not to be explained by the rapidity with which absorption goes on, but is to be ascribed in part to the poison being more liable to decomposition in one tissue than in another. Thus, many remedies are much changed in the stomach, where the powers of assimilation are very strong, and the action of absorption slow.

We are thus conducted to this point of the enquiry. Have we no means of introducing medicinal agents very rapidly into the body, in a situation where they will not be readily decomposed, and where, in certain cases, we can secure at once their local and their remote effects?

The value of such a method of procedure, in many diseases, will be apparent. We shall instance but one—neuralgia.

In neuralgia we have usually a general and local affection, a morbid state of the system, arising from many causes, displaying various symptoms, requiring varied treatment, and existing in the states of the body the most opposite; a local affection, occurring in paroxysms of violent pain, either regular or irregular, plunging like electric shocks along the course of the affected nerve, ceasing, either to be suspended for a time, or immediately to recur with still more unbearable violence.

An affection presenting characters such as have been described, would appear to demand at once a local and general treatment;—a local treatment directed to, and intended to mitigate the fearful anguish, under which the patient is well-nigh driven to despair; a general treatment intended to correct the "*habitus neuralgicus*" on which it depends, and having reference to the causes from which it has arisen, the state of the system in which it exists, and the diseases with which it may be associated.

There are other circumstances in the history of neuralgia which seem to point at and to give peculiar facilities to local treatment. It is admitted on all hands that the *superficial* nerves are of all others the most liable to the disease. It has further been shown by M. Valleix that some points in the course of the nerve are more liable to be affected than others, and that these points are frequently the very ones where the nerve is most superficial.

Further, these points can almost always be detected in the course of the disease from their extreme tenderness on pressure. Even in the intervals between the paroxysms, very slight pressure on these points is sufficient in many cases to excite severe suffering, although, in some exceptional cases, firm pressure may be applied without exciting any complaint.

The plan of local treatment which M. Valleix proposed was the application of a succession of small blisters over the points in the course of the nerves which are painful on pressure, and in all his cases it seemed to alleviate the symptoms.

The plan of blistering is not new, but for the application of it to the tender points we are indebted to M. Valleix, and that author has effected an immense improvement in practice by showing where our local treatment, whatever that may be, ought to be applied.

Our own experience has not confirmed the value of simple blisters, and we prefer following them up by the endermic application of morphia.

Two strong objections, however, apply to blistering, or the endermic application of narcotics in this disease—

1st, The painful nature of the remedy.

2nd, The mark which it often leaves, which is very objectionable when the disease is seated in the nerves of the face.

Various methods of applying narcotic or other remedies more directly to the seat of the disease have been introduced. Thus we have—

1st, The *enepidermic method*, in which the agent is simply applied to the surface of the skin.

2nd, The *Iatraleptic*, in which the absorbents are stimulated by friction to take up the agents which are presented to them in solution or in a minute state of division.

3rd, The *endermic* proposed by MM. Lembert and Lesieur, in which the obstacle which the epidermis offers to the entrance of the remedy is overcome by previously removing it.

4th, *Inoculation*, which, largely practised for the introduction of small-pox and cow-pox into the system, has been proposed by M. Lafargue St. Emilion, to be extended so as to secure the application of remedies. This method was brought before the Westminster Medical Society in Feb. 1837, by Dr. Bureaud, but from the account given in the 'Lancet,' he does not seem to have been very successful, as only a slight local effect was produced. A report was made by M. Martin Solon, for the Academy of Medicine, on this method of inoculation by morphia, proposed by Dr. Lafargue, which report comes to the somewhat damaging conclusion that the effect produced was very much the same, whatever agent was inoculated, even when the experiments were made with agents as dissimilar as belladonna, strychnine, the gastric juice, chyme.

From all this it is plain that we are still in want of a method of directly applying sedatives to the affected part, and that could such a method be suggested its value would be enhanced, could this be done almost without pain, and in a manner calculated, at the same time, powerfully and rapidly, to affect the general system.

Of the value of such an application locally to the nerve affected, no one can be in doubt who calls to mind the result of the experiments instituted by Müller, which clearly shows that, to quote his own words, "narcotic poisons," when applied locally to nerves, have only a local effect. I held the nerve of a frog's leg which was separated from the body in a watery solution of opium, for a short time, and that portion of the nerve lost its irritability, but below the part that the poison had touched the nerve still retained this function; *opium, therefore, produces* a change in the nervous matter itself, but the influence is local.

Again, every one who has seen much of neuralgia is aware that, on the one hand, the pain, acute and agonising as it is generally, subsides spontaneously after some time; that, on the other, opiates administered through the ordinary channels, are usually some hours in taking effect, so that, if this class of remedies are to be of use at all, it must be an immense advantage to secure—

1st, A local effect, applied *directly* to the affected nerve.

2nd, A remote effect, ensuing almost *instantaneously* on the application of the remedial agent.

I think we may safely arrive at the following important conclusions regarding it from the cases which I have submitted—

1st, That narcotics, injected into the neighbourhood of the painful point of a nerve affected with neuralgia, will diminish the sensibility of that nerve, and in proportion diminish or remove pain.

2nd, That the effects of narcotics so applied are confined to their local action, but that they reach the brain through the venous circulation, and there produce their remote effects.

3rd, That in all probability what is true in regard to narcotics would be found to be equally true in regard to other classes of remedies.

4th, That the small syringe appears a safe, easy, and almost painless mode of exhibition.

5th, That destitute as we are of any precise experiments as to the applicability of cellular tissue as a medium for the reception of medicinal agents, the experiments made with the syringe show that it seems to offer an excellent surface for the absorbent action of the venous system.—*Edinb. Med. and Surgical Journal, April*, 1855, *p.* 266.

20—*On Digitalis in Neuralgia.* By JUNIUS HARDWICKE, Esq., Rotherham.—[Occasionally we meet with cases which defy all usual remedies. The value of digitalis is not generally known, given internally it is most successful in such cases.]

Several years ago, having *been completely* beaten by the case of a parish patient

(and not knowing where to look next for some means of giving relief to the sufferer) who had just entered my surgery in the greatest agony, his eye watering, his cheek hot, pulse excited, etc.,—I was induced to try some digitalis powder, which I had carefully prepared according to Pereira's directions, to subdue the increased nervous and arterial action of the part. He took half a grain in the form of pill every three hours, and came next day expressing great delight at his improvement, and begging some more of the pills, which he continued until he was cured.

Since this time, I have always used powdered digitalis in such cases with the happiest results, and have even prescribed it in cases where there was much debility, and where I much feared its depressing effects, without any dangerous symptoms. I have, however, more than once thought it prudent to suspend its use for a time before the pain was completely removed; and frequently I have found it necessary to produce a decided impression on the heart; but, in most instances, relief was obtained without using it so freely. The pills have obtained such repute amongst my patients that they often apply to me for my "*tic pills.*"

I have used this medicine in a great many cases of spasmodic and rheumatic neuralgia of the face; and, during the late spring, the many cases of this kind which have occurred have given a very fair trial of its efficacy. In the case of neuralgia of the arm, I tried it with decided benefit.—*Association Med. Journal, June* 1, 1855, *p.* 512.

ORGANS OF RESPIRATION.

21.—ON INJECTION OF THE BRONCHIAL TUBES AND TUBERCULAR CAVITIES.

By Dr. Horace Green, New York.

[There has been much discussion lately respecting the propriety and possibility of applying topical remedies to the larynx and trachea. Two of the most distinguished men in Europe have recently emphatically denied the possibility of passing a sponge-armed probang into the larynx and trachea. Professor Erichsen says that, from repeated experiments, he has no hesitation in expressing his conviction that the sponge has never been passed, in the living subject, beyond the true vocal chords; Professor Trousseau also declares that the passage of the sponge probang into the larynx, either in the living or dead subject, cannot be accomplished. We shall now proceed to give the most important parts of Dr. Horace Green's paper, as we find it in 'The American Medical Monthly Journal;' and we must here take the liberty of saying, that few things have pleased us more than, in the course of our reading lately, to find such a surprising improvement in the periodical literature of our transatlantic cousins. The American journals which we have read lately abound in the most valuable and original articles, and show the rapid strides which our friends are taking to compete with the mother country. We need only add, that they have our best wishes: we watch their progress with the greatest pleasure. Dr. Green proceeds to say:]

I shall now give the proof, not only of the practicability of this operation, which has been so positively denied, but of our ability, as Americans, to accomplish still more than this for the treatment of thoracic diseases; to perform operations of which the conservative Englishmen and sceptical Frenchmen have never dreamed!

When Dr. Marshall Hall came to this country, he held and expressed the same opinion that Erichsen now entertains with regard to this operation; for, when assured by Dr. Brainard of its practicability, he declared that "the passage of a sponge wet with the caustic solution into the larynx and trachea, as proposed, would prove fatal to animal life," and yet, Dr. Hall was willing to see the attempt made, for he visited my office for this purpose, where he had an opportunity of witnessing its accomplishment in many instances, and it was he who suggested the employment of a tube, that the truth of its positive introduction into the larynx might be established, as it would be should the passage of the air be effected *through the tube when* in this position. After learning, therefore, these views of

Professors Erichsen and Trousseau, I procured several of Hutchings' flexible tubes, of different sizes, and to the extremity of one of these, which is thirteen inches in length, I attached a sponge of the size with those which are used with the ordinary throat probang.

At this time I had under treatment many patients having disease of the air passage, into whose larynges and trachea I had passed (as I believed) the sponge-armed probang in many instances. But as other proof besides my own opinion and belief was necessary to establish this in the estimation of many, I selected one of these patients, an intelligent clergyman from Canada, and wetting the sponge at the extremity of the flexible tube in a strong solution of nitrate of silver, I passed it down to the vocal chords, through the rima-glottidis (as I supposed,) and several inches into the trachea; then withdrawing the wire from the tube, I directed the patient to close his lips and blow, and breathe through the tube. This he did for several moments, filling and emptying the chest of air repeatedly. A lighted lamp was then brought, and this he extinguished promptly, several times, by *blowing through the tube!* This experiment was performed on the 5th of October, in the presence of several physicians.

But as it was intimated by one of the medical men present that it might be averred by those sceptical on this subject, that the light was extinguished by the air passing through the nostrils, or by the side of the tube, another patient was selected for repeating the experiment. This gentleman was the Rev. Mr. McAnn, the superior third of whose epiglottis could be seen easily by depressing the tongue. Upon the laryngeal face of this cartilage, the extremity of the tube was placed, and introduced readily through the chink of the glottis into the trachea. This operation was also performed in the presence of several physicians, among whom were Dr. Sims, Professor E. H. Parker, and several others. The instrument being thus introduced, one of the physicians closed the anterior nares of the patient, and the light was again extinguished by the expired air through the tube. A large pasteboard card, perforated in the centre, and of sufficient size to screen the nose and mouth completely, was then slipped over the tube, to which it fitted closely; and the patient directed to blow out the light, which was accomplished through the tube as promptly as in the first instance. After all this, Mr. McAnn was requested to expand the chest, by breathing through the instrument. This was several times performed—the patient inhaling and exhaling easily and freely through the inserted tube. These experiments were subsequently repeated on some eight or ten patients, always with the same results, and each instance in the presence of several medical men. Among those physicians who were present on one occasion or another, I may mention the names of my colleagues, Professors Barker, Davis, Peaslee, and Parker; Dr. Bowditch, of Boston; Professor Davis, of the University of Virginia; Crawcour, of New Orleans; Smith, of Galveston, formerly surgeon in the army of Mexico; Rose, of Indiana; Patterson of Ohio; Sims, Sayre, and Minor, of New York; and more than forty other physicians of this and other cities, every one of whom expressed himself satisfied with the success of the experiments, as proving the introduction of the instrument "between and beyond the true vocal chords" into the trachea of the patients. In order to test, still further, the truth of the operation, a small air-tight, elastic bag was tied over the upper extremity of the tube, and on introducing the instrument six or eight inches into the trachea of a gentleman, this little bag was inflated and collapsed a dozen times, by the acts of inspiration and expiration on the part of the patient. In performing this last experiment, an incident occurred, (which, had the tube been shorter, might have proved an accident,) that is an additional proof of the position of the instrument. The tube which, as I have stated, is thirteen inches long, was introduced its whole length, so that the upper extremity was flush with the lips of the patient, the elastic bag, which is three inches long, only remaining out of his mouth. After the patient had filled and emptied the sac several times, I let go, for a moment, my thumb and finger hold of the extremity of the tube. Just them the patient made a strong inspiration, when the whole instrument, sac and all, was drawn suddenly in, and for a moment disappeared out of sight. Thrusting my fingers immediately into the throat of the patient, I could barely reach, at the base of the tongue, the upper extremity of the bag which I seized with my thumb and *finger and drew the whole* out together.

Other experiments, confirmatory of the above, were instituted, such, for example, as the suspension by a thread of a small ball of floss before the mouth of the tube, which was alternately drawn into and expelled from the opening by the act of respiration.

The above series of experiments were considered conclusive by those who observed them, in proving that the operation of passing the sponge probang into the larynx and trachea, as we have claimed, is positively being accomplished, and we submit to the members of the profession, whether the dogmatic assertions of Professor Erichsen, that "the sponge has never been passed, in the living subject, beyond the true vocal chords," and that the operation "is utterly impossible," has not been by these experiments disproved?

But we have declared it to be possible to do still more, for the treatment of thoracic disease, than can be effected by this operation, though its practicability be fully admitted. After accomplishing what has already been described; namely, that of introducing the elastic tube into the bronchial divisions; for it must have passed several inches into these, if it entered the trachea,—these questions occurred to my mind. What shall now hinder the introduction of medicinal agents, through this tube, into the lungs, or directly into the bronchi and their terminations? What will prevent the injecting, even of a vomica, under favourable circumstances, with appropriate remedies?

Having under treatment, daily, patients labouring under, not only chronic bronchial disease, but those affected with tuberculosis, in almost every stage of the disorder, I determined to test the effect of a solution of nitrate of silver, applied directly and freely to the bronchi in disease of their membrane; also, in disease of the lungs, to inject, if possible, the same solution into tubercular excavations.

The first trial of this nature was made on the 13th of October, 1854. It is unnecessary to give the previous history of this case, in which the operation of *catheterism of the air-passages* was first performed.

The patient, a lady from Connecticut, thirty-two years of age, is in the advanced stage of tubercular consumption; a large cavity exists in the apex of the left lung, and a deposition of tubercles is present in the right. All the physical signs of both these conditions are present; my own opinion has been confirmed by the examination and opinions of several good auscultators. She has had, for several weeks past, the treatment, both topical and general, ordinarily employed in the management of such cases. Once in two or three days, the larynx and trachea have been cauterized, and the iodide of potassium, with both vegetable and mineral tonics, have been administered, and with considerable benefit. But still, the signs of advanced tuberculosis are present. The cough and free expectoration of purulent matter continue.

Oct. 13th. To-day, instead of using the sponge probang, I passed No. 12 of Hutchings' elastic tubes (which is thirteen inches long) through the trachea, and into the left bronchial division. Through this tube, with a small glass syringe, I injected one drachm of a solution of nitrate of silver, of the strength of forty grains to the ounce of water, into the lung. No cough whatever, or any sense of suffocation, was produced by this operation, nor did the patient observe in the least the ordinary bitter taste of the solution. A few minutes after the operation she stated that she "felt a warm sensation" in the upper portion of the left lung, but no pain, or any unpleasant feeling whatever, followed the operation. Mrs. A. did not return to have the operation repeated until the 17th, four days afterwards, when she stated that for twenty-four hours after the use of the injecting tube, her cough and expectoration were both greatly diminished, that she had breathed with more freedom than before; that these favourable symptoms had continued, though not as marked as at first, up to the present time. She was therefore much disposed to have the operation repeated. The tube was again introduced through the trachea its entire length, and at this time one and a half fluid drachms of the solution were thrown into the lungs. The immediate results were the same as at first, but after some minutes, she began to cough, and expectorated easily, and at once, nearly two ounces of purulent matter, changed in its colour and consistence, apparently, by its immediate contact with the argentine solution. Indeed, the expectorated matter presented precisely the appearance which is observed to take *place with the purulent* matter of an external ulcer when cauterized with the

nitrate of silver. This changed condition of the expectoration was observed by several physicians who were present when the operation was performed. The relief which followed this last operation in Mrs. A.'s case was still more marked and decided than in the first instance. Her cough, she stated, was much relieved, the expectoration yet more diminished, and her breathing was easier. A pain in the chest of which she had complained was removed; and during the two nights which followed the operation her sleep was better than it had been for a long period before. Mrs. A. remained until the 26th, during which time the elastic tube was introduced into the left bronchial division seven times, and on each occasion from one and a half to two drachms of a strong solution of the nitrate of silver were injected into the lungs. Her improvement was constant. She grew stronger, and gained flesh in this period; but, being obliged at this time to return to her home, she left with the intention of coming back to renew the treatment, in a few weeks.

The same day on which I succeeded in introducing medication into the air-tubes of the above patient, I commenced in like manner the treatment of other cases, and since the thirteenth day of October, there have been treated, for a longer or a shorter period, thirty-two patients labouring under tubercular or bronchial diseases, by the direct introduction into the lungs of a strong solution of the nitrate of silver injected through the elastic tube. Of these thirty-two cases, nineteen showed unequivocal physical signs and symptoms of tuberculosis in the different stages of the disease, complicated, many of them, with bronchial inflammation. Thirteen of the number are cases of chronic bronchitis, the disease in some of them being of many years' standing. Of the nineteen cases of tuberculosis, nine of the number presented, on auscultation, the usual signs of the presence of tubercular cavities in one or both lungs. All these cases of thoracic disease, with one or two exceptions, appear to be benefited, some of them greatly, by this method of topical treatment.

Although a rigid and circumstantial history of these cases, and of their treatment, is being kept by my assistant, Dr. Richards, I shall not detain the reader with a relation of them, but will merely select a few whose history and sanitary condition, on coming under my treatment, were known to other medical men, for all of these cases to which I shall refer were committed to my care by their attending physicians.

The first case of which I shall speak, is that of Mrs. A., whom I first saw early in January, 1854, in consultation with a distinguished physician of this city, Dr. John W. Francis. She had suffered from chronic bronchial disease for several years; but her symptoms, from taking cold, had been greatly aggravated some few months before this consultation, and on examination at this time, there were revealed signs of extensive bronchial disease, with tubercular depositions in the apex of the right lung. Marked dulness, on percussion, was found under the clavicle on the right side, with crepitating mucous râles and prolonged expiration, indicating the commencement of tubercular softening. On the left side puerile respiration, with coarse mucous râles over the whole chest. The disease seemed to have been preceded, or attended, by follicular disease of the pharynx; for the mucous crypts of the pharyngeal membrane were destroyed, and the right tonsil had become completely atrophied. Mrs. A was feeble and much emaciated, and had a severe cough with large muco-purulent expectoration. After continuing the treatment of the patient for some time, in consultation with her attending physician, at his request I consented to take charge of the case, on condition that the patient should visit me at my rooms.

In addition to the ordinary general treatment, which it is not necessary to particularize, topical applications of the nitrate of silver to the pharyngo-laryngeal membrane were employed. These cauterizations were continued, at first three or four times a week, and subsequently twice a week during the remainder of the winter and the following spring. No diminution of the cough or expectoration occurred until the local treatment had been continued for several weeks. Gradually both improved; Mrs. A. gained in strength and flesh, so that when she left the city in June, to spend the warm season in the country, she had gained several pounds in weight, and, although the cough and expectoration still continued, both were greatly *diminished*. *No* marked change in the patient's symptoms

occurred during the summer, but soon after her return to the city, at the close of the season, her pulmonary symptoms, from taking cold, or from some other cause, were aggravated, and her cough and expectoration were again increased. The treatment was renewed. Applications of the nitrate of silver were made to the larynx and trachea, which at once diminished, as before, the urgency of the symptoms. On the 25th of October, I introduced the flexible tube through the trachea, and conveying it down the right bronchial division, injected one and a half drachms of the argentine solution, of the strength of forty grains to the ounce of water, into that side. As in the first instance described, the irritation was much less than when the sponge-probang is used. Indeed, no cough or disturbance in any degree followed this operation. The effect on the prominent symptoms of the patient was very favourable. For twenty-four hours afterwards, the cough and expectoration were greatly diminished; nor did tightness of the chest, or any uneasiness whatever, follow the suppression of the discharge. On the contrary, the patient experienced so much relief during the subsequent week, that she did not return until the first of November, (one week afterwards,) to have the operation repeated. On this day, two drachms of the fluid were introduced; and thrice since, making five times in all, has the operation been performed. Mrs. A. has continued constantly to improve, and notwithstanding the unfavourable season of the year, has certainly gained more in the last six weeks, than during several months before. But what the ultimate result will be, it is of course impossible to pronounce. Of one thing we are positive, that Mrs. A. is in much better health now, than she was nearly a twelvemonth ago, at which time she exhibited unmistakable signs of tuburcular exudation, complicated with general bronchial disease.

Some months ago, General P. of Niagara, having just returned from Europe, called on me with an invalid sister, bringing with them a letter from Professor Trousseau, of Paris, under whose treatment Miss P. had been, containing his full opinion of her case, and commending her to my care. The following is an abstract of the letter from Trousseau: "Miss P., whom I have examined with great attention, will hand you the consultation which I have given her. I think she has pulmonary emphysema, with chronic bronchitis, but I have not been able to find any of the signs of tubercular affection."

An attentive examination of this lady's case confirmed the opinion given by M. Trousseau. Extensive bronchial disease existed, with pulmonary emphysema—a complication which, I believe, is almost always more or less present in serious and prolonged bronchitis.

No treatment was adopted at this time, as Miss P. was on her way home, but she proposed to return in a few weeks, and have the treatment I had advised employed. But I saw nothing more of this lady until the 15th of last October, when her brother came with her to New York, and placed her under my care. Her case now presented symptoms more unfavourable than when I first saw her. She was emaciated and feeble; was harassed by an incessant cough, and had a most profuse muco-purulent expectoration. Auscultation now revealed, not only extensive chronic bronchitis, and pulmonary emphysema, but bronchial dilatation. In addition to an almost constant bronchial cough, she was subject, daily, to paroxysmal attacks of spasmodic cough, so severe at times as nearly to suffocate her. The local treatment, conjoined with appropriate general remedies, was adopted in Miss P.'s case. The applications of a solution of nitrate of silver were made daily, first to the pharynx and then to the larynx and trachea. Improvement in her case began, as it almost always does, in bronchial disease, as soon as the small amount of caustic fluid, which the sponge will take up, had been introduced a few times into the larynx and trachea. On the 4th of November, I employed, for the first time, in her case, the tube and syringe, and injected on this occasion, two drachms of the caustic solution into the bronchial divisions. The effect of this irrigation of the pulmonary mucous membrane, was, as the patient herself remarked, "perfectly astonishing." The cough and expectoration were both greatly relieved, the oppressive sensation about the chest, long complained of by the patient, was abated, and on her return to the office, three days after, she manifested improvement in every symptom.

The injections have been repeated every day and every other day up to the

present time, and Miss P.'s improvement has been going on constantly. She is now much stronger; coughs less; has gained flesh in the last three weeks, and has exchanged her pale, sickly look, for one indicative of returning health. To-day, November the 28th, I injected for the sixteenth time, in her case, in the presence of Professor Davis, of the University of Virginia, Dr. Minor, of Brooklyn, and several other medical gentlemen, two drachms of a solution of the nitrate, of the strength of two scruples of the salt to the ounce of water, without producing the slightest cough, or any irritation whatever.

Of the thirty-two instances mentioned, of tubercular disease, it would not be difficult to select a dozen cases, from among those who have been the longest under this form of treatment, which have manifested signs of improvement as extensive, and decided, as have those cases which we have referred. I shall, however, only allude briefly to one of these, the character and treatment of which has been observed, with much interest, by several medical gentlemen.

On the 21st of September, Dr. Varick, of Poughkeepsie, placed under my care a young lady from that town, who for several years had been afflicted with chronic bronchitis of a grave character. The disease began four years ago; commencing in the form of follicular inflammation of the pharyngeal membrane, and extended by continuity to the mucous membrane of the larynx and bronchi. The disease was attended with a loss of voice, an almost constant and harassing cough, and a profuse muco-purulent expectoration. Miss V——— presented many of the rational signs of tubercular consumption, but auscultation revealed only mucous and bronchial râles over both lungs, with vesicular emphysema and bronchial dilatation. There were no positive signs of the presence of tubercular exudation, although slight flatness, with prolonged expiration, existed on the right side. Dr. Varick had employed in his treatment of her case, along with general remedies, the topical application of the nitrate of silver; but as he had not been able to medicate the larynx, and the patient was not relieved, he requested me to take charge of the case. I soon succeeded in cauterizing the larynx and trachea, both of which were ulcerated, and after continuing the local treatment for two or three weeks, the voice was restored to nearly its normal condition, but the cough was not materially relieved, nor was the profuse bronchial expectoration in any degree diminished. A deep seated dull pain, under the stirnum, which had long continued, and which had resisted the effects of counter-irritation, and other measures, still remained.

On the third of November, in the presence of several medical gentlemen, I passed the tube through the larynx and trachea, down to the bifurcation, and injected into the bronchial division, two drachms of a strong solution of the nitrate of silver. From this hour, her troublesome symptoms began to improve, the cough which heretofore had vexed her night and day was arrested completely, for a period of twenty-four hours, after this first operation; and what was equally surprising, the pain under the sternum, which had been so persistent, ceased altogether, and has not since returned.

On the second day she coughed again, but moderately, and expectorated with more ease than before. The injection was repeated on the 6th of November, and again on the 8th, and was attended, apparently, with continued advantage to the patient. The effect of the remedy was so prompt and decided in checking the profuse expectoration, that some fears were entertained by me, in this case, as well as in that of Miss P——, that unfavourable symptoms might follow the sudden suppression of such long continued and habitual drains. But in neither of these cases, nor in any one of those similarly affected and treated, have I observed any dyspnœa or oppression of the chest whatever, to follow the diminished expectoration.

Inasmuch, therefore, as the effect of the treatment in Miss V.'s case continued to be decidedly favourable, the operations were repeated every few days, throughout the month of November. During this time, she had added about ten pounds to her weight; her cough was nearly gone, her voice restored to its normal condition; and, as her whole appearance and symptoms were indicative of returning health, she was, on the first day of December, dismissed from further topical treatment.

In the treatment of the various chronic inflammations of the bronchi, I have been accustomed, for *many years, to depend upon* the topical application of a solution

of nitrate of silver to the mucous membranes of these parts, and so uniformly has success followed its employment, that, as Erichsen has said of its effects on the pharyngo-laryngeal surface, I can affirm, that in my hands it has proved almost a specific in these diseases. Others who have given the remedy a fair trial, have borne the same testimony in its favour. Dr. Allison, of London, who has published an interesting brochure on the "Medication of the Larynx and Trachea," says: "In chronic inflammation of the larynx and of the upper portion of the trachea, the solution of the nitrate of silver has, in my hands, as in others, been very useful in bringing the disorder to a conclusion, and where that has not been accomplished, by reason of its dependence upon incurable disease of the lungs, it has almost invariably afforded very considerable relief, by rendering the cough less frequent and violent, and removing much of the tickling and uneasy sensations at the upper part of the larynx. In this form of disease the treatment is particularly suitable, whether it be simple or of a specific character. * * * * *

"In some cases of disease of the larynx and trachea, in which the symptoms inclined to the suspicion that ulceration existed, the same local application of nitrate of silver has been very useful. Old bronchial affections have in a large majority of cases been similarly benefi ted."

Professor Bennett, of Edinburgh, in his recent work on Tuberculosis, thus speaks of the effects of this local remedy: "The action of the nitrate of silver solution is not that of a stimulant, but rather that of a calmative or sedative. It acts chemically on the mucus, pus, or other albuminous fluids it comes in contact with, throws down a copious white precipitate, in the form of a molecular membrane, which defends for a time the tender mucous surface or irritable ulcer, and leaves the passage free for the acts of respiration. Hence the feeling of relief almost always occasioned; that diminution of irritability in the parts which is so favourable to cure, and why it is that strong solutions of the salt are more efficacious than weak ones.

"It may be easily conceived that such good effects must be more or less advantageous in almost all the diseases that affect parts so sensitive, from whatever cause they may arise; and that this treatment is not adapted to one or more diseases of the larynx, but, like all important remedies, meets a general indication which the judicious practitioner will know how to avail himself of." And he closes a work of great interest with the following "practical conclusions."

"1st. That not unfrequently diseases entirely seated in the larynx or pharynx are mistaken for pulmonary tuberculosis.

"2nd. That even when pulmonary tuberculosis exists, many of the urgent symptoms are not so much owing to disease in the lungs as to the pharyngeal and laryngeal complications.

"3rd. That a local treatment may not only remove or alleviate these complications, but that, in conjunction with general remedies, it tends in a marked manner to induce arrestment of the pulmonary disease."

Hitherto, in the treatment of bronchial disease, a difficulty has arisen from our inability to introduce, by means of the sponge-probang, a sufficient quantity of the caustic solution into the bronchial divisions; for in passing the instrument into the opening of the glottis, and through the rima of the glottis, much of the fluid is discharged from the sponge before it reaches the tracheal division. On this account I have, in a multitude of instances, when treating bronchial disease, introduced the saturated sponge, several times, at the same sitting, in order to convey an increased amount of the fluid into the bronchi, and it has frequently happened, that patients observing its effects, have returned in a few days requesting that as much of the solution as possible be passed into the windpipe, as the cough and expectoration, they have declared, are invariably greatly improved by the operation.

By this method of catheterism of the larynx and trachea, the solution is not only conveyed with more certainty and directness to the bronchial mucous surfaces, but any amount of the medicament may, in this way, be introduced. What quantity of the solution may be the appropriate amount to be employed, in any given case; of what strength; how often to be repeated, or how long to be continued, are important questions to be solved by future experience, and by *repeated observations.*

Of one interesting fact we are now fully assured, that whenever the remedy has been freely employed in the treatment of bronchial disease, the effects have been invariably salutary. Catheterism of the larynx and trachea has now been employed in my hands, in the treatment of more than twenty cases of chronic bronchitis—some of them of a very severe and protracted nature, in which from one to three drachms of a solution of nitrate of silver, of the strength of from thirty to forty grains to the ounce, have been injected every few days, in each case, through the trachea, into the bronchi; and in every instance, with not a single exception, improvement has followed the treatment. In those cases where tubercles exist, whether the exudation be in a crude state, or beginning to soften, the beneficial effects of the treatment have been, thus far, as uniform and certain, although the improvement has not been as rapid in these, as in the former cases. Most of these cases of tubercular disease are still under treatment, and the final result cannot be foretold.

In the employment of catheterism of the bronchi, by means of the flexible tube, and the syringe, repeated proofs have occurred of the presence of this tube in the trachea. The coughing of the patient before the injecting was completed has often driven a portion of the solution, with force, through the tube, and to a distance of several feet from the patient. Several distinguished auscultators, who have been present when the operation was performed, have had the curiosity to examine the chests of the patients, both immediately before and after the operation, when they have detected regularly, by auscultation, the presence of the fluid in the lungs, immediately after the injection was made.

Of more than fifty medical men, comprising many distinguished physicians of our country, who, from time to time, have been present at these operations, all, *with one or two exceptions*, have been fully satisfied that these injections were, in reality, made, not into the œsophageal tube, but into the tracheal and bronchial divisions.

Among the patients who have been the subjects of this treatment, is Dr. Pittard, an intelligent and experienced physician from North Carolina, who came to this city to be treated for a severe and long-continued bronchial disease. The following is Dr. Pittard's testimony on this subject:—

"In compliance with your request, I give you a simple statement of the effect of an injection into my lungs of the nitrate of silver. The application of the remedy caused a considerable glow through the chest, which was felt for several hours. There was no irritation produced on the bronchial membrane, by the introduction of the fluid; but on the contrary, the cough was suspended, or greatly moderated for a day or two.

"It may be said that the injection passed into the stomach, instead of the lungs. This may have been possible in some other instances, but in my case there could be no doubt of its having entered the air-passages, for you will recollect that the breath was passed out through the tube, as soon as it was inserted, which may be considered conclusive evidence; besides, I tasted the nitrate of silver, in the matter expectorated, for twelve or fifteen hours after the administration of the remedy.

"Very respectfully,

"Jno. Pittard, M.D."

In conclusion, it is here maintained, that the direct medication of the lungs, by means of catheterism of the air-tubes, an operation I believe not before performed, has been repeatedly accomplished—that the operation may be performed by the dexterous surgeon with ease and facility, and with perfect safety to the patient, and that the results of this method of treating disease, whether it has been employed in bronchial affections, or in the commencement of tuberculosis, have already afforded the most gratifying indications that practical medicine will be greatly advanced by this discovery.—*American Med. Monthly, January*, 1855.

Since the reading of the above paper, there have been treated during the past two months many cases of thoracic disease, some of them of great interest, by this method of topical medication: and the success which has continued to attend this practice, has served to increase greatly our confidence in this measure as a therapeutic agent. Although a history of all these cases treated would not fail to interest, I shall not detain the *society with a relation* of them, but will follow the plan I

have before adopted, and only select a few of them whose history and sanitary condition, on coming under my care, and the result of whose treatment, are well known to other medical men.

Early in December, John B. Miner, professor of law in the University of Virginia, came to New York for medical treatment. He was accompanied by his friend and colleague, Dr. Davis, the distinguished professor of anatomy of the University of Virginia, by whom, in connection with Dr. Cabell, Professor Miner had been treated.

I saw him first on the fourth of December, 1854. Enfeebled by the journey, Prof. Miner was unable to leave his room for a week after his arrival in New York. It will not be necessary to detail minutely the previous history of the case. From the patient, and Dr. Davis, I learned that symptoms of thoracic disease, following chronic follicular disease of the pharynx, made their appearance nearly a year before. A severe cough, with debility, emaciation, and occasional hemoptysis, were the rational signs most prominently manifested in his case.

The following was observed to be the condition of the patient at the first examination. There is dulness on percussion at the apex of the right lung. During inspiration, the upper part of the right chest expands less than the left. Expiration, on this side, is prolonged, whilst the respiratory murmur is increased in force under the left clavicle. The "clicking ronchus" of Dr. Cotton, which is positively indicative of the existence of tubercle, is not observed, but numerous bronchial râles are heard on both sides. A severe cough, with large muco-purulent expectoration, which is occasionally streaked with blood, is present. The patient is very feeble, with loss of appetite, and a voice partially aphonic. Inspection of the throat revealed evidence of long-continued follicular disease; for the mucous crypts of the pharynx had disappeared, and the right tonsillary gland was entirely destroyed, and its place between the anterior and posterior columns was occupied by a large, deep ulcer. On looking into the throat this ulcer was entirely concealed by the anterior column, until this fold of the membrane was pushed aside by the finger. The uvula was elongated. At the request of Dr. Davis, and in consultation with him, I commenced the treatment of the patient. The elongated portion of the uvula was removed; applications of a strong solution of the nitrate of silver were made to the ulcerated portion of the throat and the pharynx, and the iodide of potassium, in combination with minute doses of the proto-iodide of mercury, was administered internally.

At the third application of the nitrate of silver solution, the sponge probang was passed into the larynx, and these operations were repeated daily until the 11th of December. Under this treatment the ulcerated portion of the throat was healed, and the acute sensitiveness, peculiar to the opening of the glottis, to which Erichsen alludes, was allayed. The cough was, also, to some extent, diminished; but this symptom was still severe, and the bronchial expectoration, and other thoracic symptoms, remained about the same as at first.

Confident, from the results which had followed the treatment in other similar cases, that the introduction of a larger amount of the caustic fluid into the bronchial divisions would be attended with greater benefit to the patient, I resolved to make the attempt to inject the lungs.

On the 11th of December, in the presence of Prof. Davis and several other physicians, I introduced number 12 of Hutchings's flexible tubes through the rima of the glottis, and carrying it down to the right bronchial division of the trachea, I injected, with a small glass syringe, one and a half drachms of a solution of nitrate of silver, of the strength of thirty grains to the ounce of water, through this tube into the lung.

This operation was performed without producing any cough, except at the moment of the introduction of the tube into the opening of the glottis; nor did any feeling of suffocation, or any irritation whatever, follow the introduction of the solution into the chest.

On the 12th the operation was repeated, and the same amount of the caustic solution was injected into the bronchial tubes. On the 14th and 15th the larynx and trachea were cauterized by the application of the sponge probang to these parts, and on the 16th the tube was again inserted, and the bronchial divisions injected with nearly two drachms of the argentine solution. The cough and

expectoration of the patient now diminished much more rapidly than when the probang was only employed. His appetite was restored, and his strength and general health improved daily. This operation of catheterism of the air tubes was continued until the 27th of the month, when Professor Miner considered himself sufficiently restored to health to return to his home and resume his duties as lecturer in the university. He had in this time gained several pounds of flesh; his cough and expectoration, which had harassed him for months, had disappeared, and from an enfeebled condition, which prevented him from walking the distance of one block without assistance, he had regained so much in strength and vigour, that for several days before he left New York he walked daily two or three miles without fatigue or inconvenience.

But what is equally interesting and important, is the fact, that in an examination of the patient's chest, on the day of his departure for home (and this examination was made not only by myself, but by several good auscultators), it was found that the physical signs which were present at first had quite disappeared.

Still later, and only a day or two ago, I received a letter from Dr. Davis, in which he writes, "It will be gratifying to you to know that Professor Miner has not been compelled to suspend his lectures, or to omit his daily exercise since his return," for a single day.

During the same time in which Professor Miner was receiving medical attention, there was another patient being treated, the nature of whose case, its management, and the result of the treatment, were observed with much interest by several medical gentlemen.

James Moore, of New York, aged 35, came under treatment September 24, 1853. In September, one year before, Mr. M. began to lose flesh, and debility, with a slight cough, soon came on. He had suffered occasionally for several years from chronic pharyngeal disease, and enlarged and diseased tonsils. But as this condition of his throat had occasioned but little inconvenience, no particular attention had been called to it until symptoms of thoracic disease made their appearance.

These continued to increase during the winter and spring of 1854. A severe cough, with subsequently a free, muco-purulent expectoration, constant emaciation and debility, were the prominent symptoms in his case; symptoms which gradually augmented in severity until the above period, the 24th of September, when he came under my care. At this time the rational signs which his case presented were those above named, together with dyspnœa, on exertion being made, and partial aphonia.

The physical signs were correspondent. Dulness on percussion, with crepitating râles, were observed over a part of the right lung. Near the upper portion of this lung, strongly marked signs of tuberculous excavation were present. These physical signs were observed by several good auscultators.

The throat of the patient was in a diseased condition. The uvula was elongated, the follicles of the pharynx were inflamed and enlarged, and full of ulcerated openings, from which purulent matter exuded.

The diseased portions of the enlarged tonsils were removed, the uvula shortened, topical applications of the nitrate of silver were made to the pharynx, and were soon carried into the larynx and trachea, and the iodide of potassium, with tonic and supporting remedies, were administered.

This plan of treatment was continued (the applications being made twice and three times a week) until early in November, varied, so far as the general treatment was concerned, as circumstances seemed to indicate. During this time, the patient made some improvement; his voice was restored, his cough was in some degree lessened; but the amount expectorated in the twenty-four hours, remained about the same, and it was remarked that the patient continued gradually to emaciate. After consultation with some of my professional friends with regard to his case, it was concluded to employ catheterism, and to carry the point of the injection tube, if possible, into the right bronchial division. This operation was performed first on the 13th of November, and nearly two drachms of the argentine solution injected into the right lung.

This operation was repeated once in two or three days, alternating the tube with the sponge probang, until the 15th of January. Within twenty-four hours after the first *injection, both the cough* and expectoration of the patient began to

diminish. He soon commenced to regain flesh and strength, and every unfavourable symptom continued gradually, and in comparison with what had previously occurred, rapidly to diminish.

On the 6th of January, along with my colleague, Professor E. H. Parker, I made a careful examination of the patient's chest. The respiratory murmur could be heard full and clear on both sides; prolonged expiration in one location was the only abnormal sign present.

January 25th, Mr. Moore called again and reported himself "quite well." He has no cough or expectoration, except some slight raising in the morning. He is quite strong and hearty, can walk any reasonable distance, and attends constantly to his ordinary business.

The question now occurs, and it is one of much interest, were these symptoms in Mr. Moore's case, the result of tuberculous exudation, and consequent softening of the tubercular mass; or did these signs, rational and physical, proceed from severe chronic bronchitis, and bronchial dilatation? The inception, progress, and symptoms of the disease, and the location of the apparent vomica, were certainly those belonging to tuberculosis. And Professor Bennett, of Edinburgh, in his recent work on tubercular consumption, has established undeniably the fact, that pulmonary excavations, much more frequently than the profession generally are aware of, are both by nature and appropriate treatment permanently healed. If, therefore, these cavities can, by their location and their openings into the bronchial tubes, be in any case reached with the remedy, and in the manner proposed, have we not some reason to hope from our knowledge of the effects of this agent on ulcerated surfaces, that this consummation, so devoutly desired, may in some cases be attained?

That this local therapeutic agent will prove an efficient and valuable remedy in the treatment of chronic bronchial disease, can be established by the history of many cases in which it has already been successfully employed.

[The above extract is from a publication which fully confirms the good opinion which we have previously expressed respecting the American periodicals. Here is a journal of transactions, full of interesting and original matter, apparently printed at the expense of the State of New York.]—*Trans. of State Med. Society of New York*, 1855, *p.* 244.

22.—ON TUBERCULAR INFILTRATION.

By Dr. C. Radcliffe Hall, Physician to the Hospital for Consumption.

Rokitansky applies the term infiltration to yellow tubercle, which he considers to be formed in the cavities of the air-cells, whilst grey tubercle (according to him) is formed in the interstices of the pulmonary tissue. He uses the term interstitial as synonymous with grey tubercle; infiltrated as synonymous with yellow. Even were the anatomical facts correct (which I believe they are not), if we mean by infiltration the filtering of a morbid fluid into and amongst the elements of a texture, we should reverse this assignment, and call that tubercle infiltrated which was interstitial, rather than that which was only vesicular. In common use, the term infiltration of tubercle is vaguely employed to signify during life either the sudden supervention of acute phthisis, or else any rapid addition to solidification in a lung known or suspected to be tuberculous, and in morbid anatomy it is customarily applied to any consolidation of lung of which tubercle forms a part.

Under this designation have thus been comprised—1. The sudden pouring out of tubercle into multitudes of air vesicles, with intense congestion and sanguineous œdema of the whole lung (acute tuberculization). In this case, strictly speaking, the term is a misnomer; serum being infiltrated, tubercle restricted to the air vesicles. 2. One or other kind of simple inflammatory exudation extensively diffused around pre-existing tubercles. 3. A large mass of yellow tubercle monopolizing all the elements of the portion of lung affected. 4. A conjoined diffusion of tubercle-corpuscles, and some kind of simple exudation.

In a strict sense, every ordinary pulmonary tubercle is, to a certain extent, an *infiltration, since, whilst it* begins in the air vesicles, it subsequently invades the

interstitial tissue also. But so long as it is distinctly circumscribed, the term is not applied. By tuberculous infiltration, then, we understand every kind of diffused exudation in which tubercles are contained, whether in distinct nodules, or molecularly distributed throughout. Every kind of diffused consolidation in a tuberculized lung (pulmonary apoplexy excepted) is a consequence of inflammation. Tuberculous infiltration, therefore, is simply tubercle mixed up with inflammation-matter, and its consideration necessarily involves that of the mutual relationship customary between inflammatory exudations and tubercle.

Diffused tuberculous solidification in the lung is grey and hard; yellow and firm; or soft and gelatinous.

Grey infiltration is found in large smooth patches, contracted, tough, shining, and slippery. To the naked eye, the texture of the lung in it is lost; but under the microscope, the pulmonic fibres are seen cemented irregularly in the semi-transparent exudation. The air-vesicles have lost their normal form and relative arrangement, and are represented only by the interspaces which exist amongst the bands of fibres. Distinct tough grey miliary tubercles may or may not be sparsely or thickly present, and may stand out in relief on cutting through the part; but neither by section nor by tearing can any other kind of granulousness be produced. A thin colourless serum bedews the part. No blood-vessels and no bronchial tubes remain pervious within the centre of the mass. Small bronchial tubes may be pervious for a short distance beyond the margin of the induration. If so, this part of them contains muco-pus, and has its lining membrane thickened, softened, and sometimes reddened. The lung bordering the grey induration may be in the state of red hepatization, but more frequently it is crepitant, mottled black, blue and red, and only moderately congested. In the midst of the semi-transparent induration, we may find distinct grey miliary tubercles; the same in their opaque stage; spots of cheesy-yellow tubercle; and *depôts* of softened tubercle. Or, on the contrary, a portion of tuberculous lung may be glazed with grey, smooth, semi-transparent induration, in which no distinct tubercles are to be seen.

In the lung which is close adjoining grey induration, we find nebulous and fatty epithelium; compound tubercle cells and granule cells. In the induration itself, a translucent, homogeneous, or else faintly fibrillated matrix; a few fibre cells, partially developed; the pulmonic fibres matted together; and numerous cells of various sizes, nucleated and unnucleated. Of these cells, many are the round granule cells, only differing from those common to all inflammatory lymph in being more transparent. When distinct tubercles lie in the induration, they add, of course, their own proper microscopic appearances.

Yellow Infiltration is also found in large irregular patches, but is not contracted, and is less tough than the grey; being rather unctuously tenacious, or even friable, than firm, coherent, and resistant. The adjoining lung is always inflamed, and is more commonly the seat of local red hepatization than is the case around grey infiltration. We find a greater abundance of free granules and of oil molecules; of cloudy granule cells and tubercle corpuscles. The matrix is never fibrillated. The pulmonic fibres are less distinct, and apparently in part destroyed. The whole is semi-opaque and muddy.

Gelatinous Infiltration is pink, yellowish, or ash-coloured. The part of lung thus affected is smooth and softly solid, but compressible. The air-vesicles within it retain their normal arrangement, excepting where miliary tubercles happen to exist; or it may be softly nodulated, from the gelatinous exudation being firmer in some of the air-cells than elsewhere. The colour depends merely upon admixture with extravasated red blood globules, and their dissolved hæmatin. That regarded, we find indifferently in the reddish and the more colourless forms the same objects: fatty epithelium; compound tubercle cells; tubercle corpuscles; pigment cells; granule cells; fibre cells; and sometimes crystals of mineral salts.

These tuberculous infiltrations follow the usual rule of parenchymatous inflammations, by which an acute inflammation tends to soften, a chronic one to harden.

As to their *rationale*:—In the dense, contracted, glistening, grey induration, we see a very chronic inflammatory exudation of common induration-matter, variously mixed up *with the elements* of tubercle. We may assume that the

plasma, when exuded, is very contractile, and but slightly tuberculous: more blastematous than corpuscular.

In yellow infiltration we see an acute inflammatory exudation; the plasma not contractile, largely tuberculous, more corpuscular than blastematous.

In gelatinous infiltration we see an acute exudation, but thinly adhesive. An effusion of liquor sanguinis, too feebly contractile for the lymph to separate itself as much as usual from the serum. We may infer that it is poured out rapidly, and that it coagulates to its jelly-like extent immediately, from the fact of the chance-setting within it of a bronchial epithelium cell, with its cilia extended. The plasma is poor in fibrin, but more blastematous than corpuscular.

Greyness indicates that the exudation is chronic; yellowness that it is acute; jelly-like consistency that it is recent. We constantly find specimens of all in the same lung. The grey induration is the oldest, and represents the earliest reactive response to the irritation occasioned by the tubercle, whilst there is yet a fit state of blood to pour out contractile plasma. The yellow infiltration points to a deteriorated condition of blood, and to more of local inflammatory process. It occurs subsequently to the grey, when the progress of the disease had injured the constitution more. The jelly is a still later exudation, and takes place towards the close of life, when the blood has become poor in every respect, and unable to furnish firmly coagulable lymph.

Besides these tuberculous infiltrations, in which the tubercular matter is intimately associated with inflammatory exudation of a characteristic kind, tubercle has also an habitual relationship to common forms of inflammation.

A grey miliary tubercle, whilst yet semi-transparent, may be surrounded by lung which is quite permeable, crepitant, and to the naked eye healthy. Examined by the microscope, the small blood-vessels around it are somewhat enlarged and clustered, as if they had been obstructed and pushed outward by the tubercle. The adjoining vesicles present the appearances already dwelt upon. There is no evidence of inflammation here.

A miliary tubercle may become opaque, and still have no inflammation around it; it may also undergo centric softening without inflammation; but as a rule, when softening commences in the tubercle, inflammation around it, if absent hitherto, commences likewise. Perhaps we never find a distinct tubercle softened throughout to complete liquefaction without its being surrounded by a zone of lung affected with inflammation in some shape. What is true of one miliary grey tubercle is equally so of groups. Innumerable distinct grey tubercles may be strewn throughout a lung, or a portion of lung; and for so long as they remain small, distinct, and unsoftened, there may be no inflammation. This does not apply to primary yellow tubercle. We never see them thickly strewn without some kind of attendant pneumonic change. An ancient yellow tubercle, it is true, may be found capsulated by a fibrous envelope, around which the lung is all but healthy. Here there was once a certain amount of inflammation—small in amount and adhesive in type, it may be,—although there is none now.

When grey miliary tubercles are thickly clustered in groups, local chronic inflammation is common around each group, in the form of grey semi-transparent induration. When grey tubercles become entirely opaque, and still more constantly, when they begin to soften, if not already enclosed in a patch of grey induration, they are now surrounded each singly by a circle of red hepatization, the intervening lung remaining crepitant and not congested, or greatly congested but still permeable; or a portion of lung including numerous distinct tubercles may be entirely in a state of red hepatization. Hence, when a number of distinct tubercles are softening, we have co-existing either an equal number of local miniature pneumonias, or else one patch of pneumonia including all the softening tubercles.

As a softening tubercle increases in extent, it never does so at the expense of healthy lung, but always of lung which has previously been the seat of inflammatory exudation. To the ravages of softening lung, therefore, inflammation is quite essential. Our first indication of commencing softening—the fine moist crackle—is due to hyper-secretion in the minute bronchial tubes close around the tubercle, which is occasioned by local inflammation.

The process by means of which, out of a series of neighbouring tubercles, a

large vomica is formed, is as follows:—The intervening lung inflames, and assumes some form of solidification,—if slowly, the grey induration; if quickly, red hepatization; ordinarily the former. Molecular disintegration and liquefaction of the solidified lung ensue, and so permit the already softened separate tubercles to open into each other, and form one common vomica. As long as the exudation seals up the bronchial tubes, so long does the vomica remain closed. Such a closed vomica, full of pus-like fluid, may be found the size of a walnut. After a time, by the same destructive agency which has enlarged the dimensions of the vomica, a bronchial tube is opened into, and a cavity results.

Where there is a number of minute local pneumonias, there is usually bronchitis in local patches only. During the sleep of miliary grey tubercles there is not, as a rule, any bronchitis, or any pleurisy whatever. When the grey tubercles begin to soften, they begin to irritate; they now become "thorns in the flesh," usually not before. The reactive local inflammations correspond.

Pleurisy, when spontaneous in its origin, whether general or in local patches, usually responds only to the presence of tubercles near to the pleural surface of the lung. If a superficial tubercle is small, not prominent, and is semi-transparent, the pleura over it may remain bright and unaltered. If the tubercle projects, or becomes opaque, the pleura over it is white and thickened. Any irritation beyond this is shown by every possible degree and result of pleurisy, with or without the deposition of tubercle in the adhesions which may be formed.

The bronchial tubes and the pleura near to primary yellow tubercle are never found free from inflammation.

The morbid anatomy of the bronchial tubes in tuberculized lungs may be briefly summed up by saying, that every result of bronchitis is found; the only peculiarity being, that as long as the tubercles allow a large portion of the lung to remain healthy, so long is the bronchial inflammation more or less limited to the vicinity of those tubercles which are pursuing the destructive course. There may be great local destruction of lung without extension of bronchitis beyond the immediate neighbourhood of the part.

In that part of the lung which is free from tubercles we may find, to any extent, congestion, œdema, emphysema (partial), red granulous hepatization, red smooth solidification, or grey hepatization. These possess no peculiarity in their anatomical features dependent on their occurrence in a tuberculous lung.

With non-inflammatory simple blood-exudations the connexion of pulmonary tubercle is small. Pure blood is found in the air vesicles in the rare instance of death during hæmoptysis. Such extravasation of blood, with laceration of lung tissue (pulmonary apoplexy), is very rare. Clots of blood have also been found in cavities. Point-extravasation of red globules interstitially in some part of the lung tissue, or in the tubercles, is never wanting. Of simple fibrinous effusion without inflammation in a tuberculous lung, there is no proof. Passive œdema it would be difficult to distinguish from the common active kind.

Destructive Course of Chronic Pulmonary Tubercle.—The *destructive course* of tubercle comprises degenerative changes in the tubercle itself, inflammatory action in the tissues adjoining, and, commonly, increased deposition of tubercle.

Softening.—After remaining passive, or quietly increasing in magnitude, for an indeterminate period, varying probably from a few weeks to an unknown number of years, tubercle begins to soften. Semi-transparent tubercle first becomes opaque, and remains opaque and firm for an indefinite time. It next loses its firmness usually first in the centre, which assumes a buff colour, and by degrees softens to the consistence of thick paste. Liquefaction proceeding, the whole tubercle changes into a creamy fluid, and the softening is complete.

During the firm opaque stage of the grey tubercle, in the tubercle cells we discern no other change than that they are no longer as translucent as before; but in their relative proportion to the free molecular matter there is a marked difference. Compound tubercle cells are few. Tubercle corpuscles are also less abundant. Oil molecules abound. The outlines of the air vesicles are imperfectly traceable. The matrix is still tenacious and tough, and the whole moves together under examination.

In the pulpy stage the matrix has become liquid, the pulmonic fibres are broken into lengths, and molecules are still more abundant.

In the creamy stage there is simply a larger proportion of fluid. We find shreds of pulmonic fibres; bits of small blood-vessel, either fattily degenerating, or merely shrivelled; various forms of nebulous cells; occasionally large fatty epithelium plates and compound tubercle cells, which have escaped disintegration; oil molecules and granules in abundance; and pus cells or not, according to circumstances. If there be communication with the air by means of an opening into a bronchial tube, pus cells are always found, and make up the bulk of the fluid; but when the vomica is closed, a small one (size of a pea) may not present any pus cells in the pus-like liquor which fills it. A large one (size of a walnut), though closed, I have invariably found to contain pus cells; and in addition there may be seen in the contained fluid bronchial epithelium, enveloped red blood globules, and pigment cells; bits of lung-fibres; dots of mineral salts, and small blood crystals.

If active inflammation surrounds the vomica, however small this may be, pus will be found in the liquor of the tubercle.

As crude yellow tubercle is opaque from the first, the first indication of softening in it consists in loss of firmness. It first becomes cheesy, then rough and creamy. Softening more rapidly affects the entire tubercle than in the grey variety, but occasionally when a yellow tubercle is large, the centre will be cheesy before the rest. A greater abundance of yellower oil molecules, and of free granules, fewer cells of any kind, excepting tubercle corpuscles, and a more muddy appearance altogether, are the microscopic distinctions. In the liquor obtained from centric softening, whilst it has not yet implicated the rest of the tubercle, and consequently not yet reached the lung tissue, we find only tubercle corpuscles, oil molecules, granules, and liquid; never pus nor inflammation globules. As soon as the entire tubercle has liquefied, and the softening has thus reached the lung tissue, we find pus and granule cells.

The whole of a tubercle does not usually soften at once. Softening may commence at the centre; or at the periphery; or at both at once; or when the tubercle is large, it may commence in several points at the same time. The rule is, that when the tubercle is distinctly circumscribed, and no active inflammation exists around it, softening commences at the centre, and may be exceedingly slow in reaching the circumference. But when softening commences at the circumference, it does so in consequence of inflammation in the adjoining lung tissue, and is never long before it involves the entire tubercle. The irregular softening of diffused tubercle is due to the circumferential or centric commencement of softening in each or several of the small tubercles, of which the larger mass is but an aggregation. In every instance that part of the tubercle is first to soften which is first deprived of its means of support:—the part most distant from supply when the centre commences; the part most immediately interfered with by adjoining inflammation when the circumference.

A cavity may be of any size, from that of a pinhead to that of one capable of holding a quart; and may be surrounded by lung in every imaginable condition, excepting that of health. A thin filmy membrane may be all that separates it from the lung tissue; or its boundary wall may be a dense white fibrous layer, of very variable thickness. The surrounding lung may be merely congested, or hepatized, or, as is most common, it may be the seat of grey induration. However dense, white, and shining the wall of an old cavity may appear, it is never anything more than imperfect fibrous tissue, and is cartilaginous only in outward appearance.

It is generally stated that cavities enlarge chiefly by the melting down of fresh tubercle deposited in their wall. This is not quite exact. Fresh tubercle is met with either in the shape of distinct nodules, or of grey induration on the outside of the wall of the cavity, but in the actual membraniform wall we do not ordinarily find characteristic tubercle cells. Proceeding from within outwards, we find next to the contained fluid a layer of granule cells and fat molecules, forming a sort of pyogenic pavement epithelium. This rests upon a delicate network of fibrils, amongst the meshes of which more granule cells are freely scattered. The cells for the most part are nucleated. Some are pus cells, but the majority have not exactly that character. A few pigment cells, and blood globules, and glomeruli *are sometimes found.* Fibre cells, fine and transparent, are largely seen, more

and more developed as they are further from the cavity. When the neighbouring lung is permeable, it is separated from the outside of the fibrous wall by a layer of soft gelatinous exudation, which shades off into the tissue of the lung. More frequently, grey induration is in contact with the fibrous wall of the cavity.

The contents of an old cavity are little else than pus.

Beneath the soft pyogenic lining of a large cavity I have in two instances found blood-vessels in the state of fatty degeneration. In another instance I found fatty blood-vessels in a portion of distensible lung half an inch distant from any deposit of tubercle, the epithelium of the air vesicles here being fattily degenerate. This makes four cases in which I have now seen fatty degeneration of the small blood-vessels of the lung in phthisis.—Near to, but not mixed up with, tubercle, in one; within grey tubercle, on the enclosed wall of an air vesicle, in one; in the wall of a large cavity, in two.

If we trace a large bronchial tube towards the wall of a closed vomica, its blind extremity is first stopped up by a plug of yellow tenacious concrete pus, and then by firm grey gelatinous matter, into which by degrees the tube seems to be transformed.

Nature of Softening.—The softening of a tough tubercle does not necessarily imply absorption of the solid and deposition of fluid in its place. It is a physical molecular change in the original material of tubercle, such as is exemplified in the centric softening of fibrinous clots, and fibrinous exudations, which has so often been mistaken for pus. Such, also, as occurs, according to Mr. Paget, when a large firm collection of inflammatory exudation is suddenly converted into the fluid of an abscess. Spontaneous softening, therefore, is not a special characteristic of tubercle, but belongs to it in common with many other firm morbid formations. Just before the fluid stage, when the tubercle is on the eve of liquefying, but is yet only soft and moist, the tubercle cells are larger, plumper, and more opaque than at any previous period. They also now manifest changes of shape under manipulation, as observed by the microscope, which they cannot be made to do at any other time. The larger size and more uniform outline probably indicate physical imbibition rather than growth; impending disintegration rather than development. It shows that the tubercle cells are about to change their condition; that they can no longer remain stationary; that the power which they have hitherto possessed of maintaining their own feeble nutrition is gone. As liquefaction advances, most of the cells disappear, and in their stead we have oil molecules, granular detritus, and liquid. Besides the true oil molecules, highly refracting particles of a peculiar modification of albumen (Dr. Parkes), and particles of crushed phosphate of lime (Dr. Jenner), cannot by the eye alone be easily distinguished from oil molecules. A little micro-chemistry is requisite. The lime effervesces with, or is dissolved by, an acid; the albumen is scarcely altered by ether; the oil molecules are either greasily dissolved away, or else much brightened by ether. The lime indicates calcareous degeneration; and the albumen in minute particles also indicates degeneration equally with the oil molecules.

Softening of tubercle, then, essentially consists of two combined modes of disintegration—fatty degeneration and liquefaction. The two do not seem in all cases equally to participate. The more there is in the softening of molecular transformation, the slower and safer and more likely to admit of arrest, is the disease. The more there is of liquefaction, the quicker and more destructive is the progress. The former change is more allied to normal disintegration of tissue. The latter to disease. The former admits of slow ulterior and not unsafe transformations. The latter is connected with more inflammation of surrounding tissue.

Destructive Inflammation.—When a tubercle is fully liquefied, the surrounding lung tissue, if not already inflamed, always becomes so; just as the integuments over an enlarged lymphatic gland inflame when this has fully suppurated. But as the skin in most cases does not wait until suppuration has been completed, before it begins to inflame, so, in like manner, the pulmonary texture seldom waits for the completion of softening in the tubercle ere it inflames. Inflammation, molecular death, and suppuration are the terminal steps in the local destructive course of tubercle; and *when united, by their havoc*, so riddle the lungs with channels and

cavities, as constantly to excite our wonder that life could have been at all compatible with such an amount of disease.

Increase of Tubercle.—Tubercles are found of obviously different age and condition in almost every microscopic examination of chronic phthisis. The deposition of tubercles is therefore progressive. What causes this progressiveness? In the first place, and mainly, the persistence and increase of the cachexy. Then, inflammation around existing tubercles, provided the cachexy is great. We have a right to infer this, if only from the fact that tuberculization, in the shape of tubercular infiltration (which might be called tubercular inflammation,) is more extensive, more rapid and destructive, in the later stages of chronic phthisis, when the general cachexy has attained its worst. And lastly, it is possible that the mere presence of tubercle may serve to some extent as an attractive focus for more.

As tubercle corpuscles possess no power of growth after they have once attained their ordinary small size, which they probably do at once, and no power whatever of self-multiplication by cell-reproduction, a tubercle can only increase in size (as already remarked,) by the accretion of fresh material from without. Now, does the existence of some tubercle in the lung exert a strong attractive influence for more? Whilst the diathesis remains unimproved, does deposition of tubercle, after it has once commenced, go on fast in proportion to the number of separate deposits already laid down?

That a tubercle is to some extent a centre of aggregation is certain, or it would never increase at all. But it is less clear that this aggregation results from any such attraction of like-for-like as that which operates, for example, in crystallization. A tubercle, however small, obstructs a number of capillary vessels, produces a stasis in the circulation, which so long as inflammation has not obliterated the vessels, is most considerable close to the tubercle. Exudation is consequently favoured here more than elsewhere, and provided the blood plasma be tuberculous, and in proportion as it is so, will such exudation tend to increase the quantity of tubercle. At the same time, we cannot prove that there is none of the like-for-like attraction (homogeneous affinity) between the elements of a completed tubercle and the blood plasma; but there are reasons for considering that if any such do operate, its influence cannot be strong. If it were strong, the dissemination of small tubercles would be the exception, and not the rule. And, unless we assume the first deposition to have exhausted the tubercle material for a time, existing tubercles would continue to increase in size in a geometrical ratio; tubercles would scarcely be laid down at all in fresh situations; and temporary lulls of the disease would be greatly less common than they are. There is another reason for inferring that tubercle has not any *strong* tendency to invite the formation of more. Such attraction in the living economy generally proceeds from, and depends upon, active vital changes, in which active cells draw from the blood what they require for growth and multiplication. In this way cancer acts as a centre of attraction, for its cells grow, multiply, and for a while remain as cancer matter. But not so in tubercle. Here, cell life is at its minimum; development is small; multiplication null. Material is not wanted for growth, for after the first there is no growth; and material is therefore not attracted. Still tubercles do enlarge; and if a tubercle does in some way promote further deposition around itself, of what moment is the question—whether it does this by means of direct attraction exercised upon blood plasma, or merely by mechanical obstruction at the spot favouring exudation? The question has this importance and interest. In the one case—Tubercle must ever keep up Tuberculosis, for Tubercle makes Tubercle. In the other, it is the tuberculous diathesis alone which occasions increase of tubercle, and the tubercle already deposited has not, from the mere fact of its presence, at all events before the period of softening, any direct influence in keeping up the tuberculous diathesis. In the former case, the mere existence of a tubercle would offer an all but insuperable obstacle to correcting the diathesis. In the latter, could we correct the diathesis, the existing tubercle would not of necessity cause more to be laid down.

These remarks apply only to tubercle when completely formed. Whilst forming, the compound tubercle cells which line the air vesicles probably do attract their plasma from the blood; and, therefore, at this stage of unformed but forming *tubercle, the spot of lung* affected must certainly be considered as a focus of attrac-

tion for tubercle; but this ceases as soon as the given air vesicles are crammed with exudation, and the tubercle has thus become completed.

Progressive increase in the quantity of tubercle is the principal element in the destructive course of chronic phthisis, not only because it proves that the cachexy still continues in active operation, that "the snake is not even scotched," but also because the larger the tubercles become, the more certain are they to soften quickly (and therefore dangerously); for the farther the oldest portions of each tubercle are pushed inwards towards the centre of the deposit, the farther are they removed from the source of nutritious supply, and from the influence of living tissue.—*British and Foreign Med. Chir. Review, Oct.* 1855, *p.* 478.

28.—*Mode of Administering Cod-liver Oil.*—Cod-liver oil is so precious a medicament, especially among children, that every imaginable contrivance to facilitate its use has in our eyes great value. The following is a good formula for a vehicle which completely masks the disagreeable taste and odour of cod-liver oil:

Yolk of one egg; sugar, ℥i; orange flower water, ℥j.; cod-liver oil, ℥iij.; essence of bitter almonds, gtt. j.—*Dublin Hospital Gaz., Feb.* 1855, *p.* 13.

24.—ON THE USE OF COD-LIVER-OIL OLEINE.

By Dr. Arthur Leared.

The utility of cod-liver oil in a great variety of diseases is now so fully established, that the mode of its administration is a point of corresponding interest. From my experience of this remedy, however, chiefly at the Brompton Hospital for Consumption, and at the Royal Infirmary for Diseases of the Chest, London, I have satisfied myself that, in certain cases, it cannot be at all tolerated; while, in others, the inconveniences from a persistence in its use are so great, as to render t of very questionable propriety. Every one who has extensively prescribed the oil internally will, I think, agree with me in this. In many instances, however, this arises merely from a repugnance to the sensible properties of the medicine. Its taste, smell, or the oily sensation left by it in the mouth or fauces are complained of, and occasionally induce nausea, and even vomiting. By proper management, the difficulties in question are, nevertheless, usually got rid of. But it is not my intention to enter here into these matters. More serious obstacles present themselves, in the shape of dyspeptic symptoms, of various degrees of severity, occurring some time after taking the oil. These are—loathing of food, eructations having the taste of the oil, nausea, sometimes attended with vomiting, cardialgia, severe abdominal pain in the region of the duodenum, &c. I have observed the last-named symptom to be in some cases a prominent one, and I lay stress upon it for reasons to be afterwards explained. Against the foregoing train of symptoms the measures usually employed in dyspepsia are sometimes successful, but in other cases they utterly fail. I have tried bismuth, hydrocyanic acid, bitters, mineral acids, and alkalies, with the same negative results. The times of taking the oil, as well as the kind taken, have been changed in vain. Although otherwise strongly indicated, a persistence in the use of the oil under such circumstances would of course be highly injurious. I have frequently observed that patients who suffered most from the after-effects of the oil, exhibited no repugnance to the act of taking it. The practice I am about to advocate in cases so refractory as those referred to, was suggested by a theory of my own of the digestion of fat. I must beg to refer to the "Medical Times and Gazette" of June 8, 1854, for a detailed explanation of my views. It will suffice to mention here that I regard the pancreatic secretion as subservient to the digestion of fats and oils, in virtue of its power of resolving these bodies into their immediate principles, stearine, margerine, and oleine, or into the two latter, which are those of cod-liver oil. I have also advanced the opinion that it is the oleine which is alone available for nutrition, and that the others are excrementitious. This theory, it will be observed, is very

different from that of Bernard. According to the latter, fatty bodies are absorbed in a state of minute mechanical division, effected through the emulsifying power of the pancreatic fluid. From my own experiments, and having observed that the digestibility of fats and oils appears to be directly proportionable to the relative amount of oleine in their composition, I determined to try the effects of oleine practically pure, derived from cod-liver oil.

For this purpose a considerable quantity of it was prepared, from my directions, by Messrs. Butler and Harding, chemists, St. Paul's Church-yard. The process employed consisted in submitting the oil to a very low temperature, and separating the oleine by pressure from the semi-solid mass thus produced. I am informed that 75 per cent. of oleine was about the average yielded. Thus obtained, it is a very liquid, and, at ordinary temperature, a very transparent fluid, agreeing in colour with the oil from which it is prepared.

Its freedom from margarine may be tested by submitting it to as great a degree of cold as possible, when there should be no actual precipitate, but a certain amount of cloudiness usually occurs. Of its exact analysis I can only speak conjecturally; that of the oil itself is, however, well known. If, therefore, the good effects of cod-liver oil are largely ascribable to certain substances in combination with it, as iodine and bromine, there is a strong presumption that oleine is superior, as containing a larger proportion of them. Gaduine, a peculiar principle of cod-liver oil, to which its efficacy has been also ascribed, according to De Jongh, who discovered it, adheres to the oleine when the margarine is separated, and is isolated only with great difficulty. Gaduine, therefore, will be administered in larger proportion in the oleine than in the oil itself. If, then, in the latter case, oleine is assimilated to the exclusion of margarine, no doubt can exist that oleine is the most active remedy in all cases in which the oil is indicated. It is my present purpose to maintain that in certain cases oleine is alone available, and that its efficacy is at least not inferior to the oil. The question, in its more extended shape, remains to be tested by further clinical experience. When I left London to take my present appointment I had, chiefly out-patien t
a considerable number of cases under observation in which, on account of severe dyspeptic symptoms, cod-liver oil could not be borne at all, or was borne with great difficulty. I regret to say that, with two exceptions, I have not brought the notes of them with me. I cannot, however, recall a single instance in which the use of the oleine in the same or even larger doses than the oil, was unattended with good results. In some instances, as will be seen, severe pain and obstinate vomiting caused by the oil, were at once removed by changing it for oleine. I may here observe, that although in many cases dyspeptic symptoms are at first induced by taking the oil, a persistence in it appears to overcome them. There are other cases in which, although the oil is well borne at first, the system afterwards rejects it. In the latter cases the oleine is the most useful, and I have almost invariably found, that the oil could be replaced by it with the best effects. I have also noticed in England, as no doubt others have as well, that taking cod-liver oil is much less irksome to certain patients in winter than in summer. Inquiries which I made among retailers of the drug in London, as to the sale at different seasons, go to prove this remarkably. In this point of view cod-liver oil oleine is of interest as regards warm climates like this. For although the well-known theory of Liebig of the uses of fat in the economy may be adduced to explain the effects of temperature alluded to, it is highly probable that the superior digestibility of oleine would cause it to be better tolerated in hot climates than the oil. The following abstracts are taken from my notes of the two cases alluded to:—

E. D., aged 16 years, became an out-patient at the infirmary October 3rd, 1854. He had phthisis, and cod-liver oil in drachm doses three times daily was prescribed. At his next visit he said the oil made him so sick that he had constantly vomited at intervals varying from a quarter of an hour to an hour after taking it. He was then given a finer kind of oil in the same doses for a week. At its expiration, he reported that he had invariably vomited between two and three hours after taking the oil, with the exception of the doses taken at night. Oleine, prepared from the same kind of oil as that last taken, and in the same *doses, was now prescribed.* For the week following the report is, that he had

not vomited at all after the oleine, and felt no inconvenience from it. The oil he had last was now again ordered, and the following week he stated that although it did not actually cause vomiting, he was greatly tormented by its rising in his throat. Recourse was now had to the oleine, which he continued to take up to the date of the last entry (some weeks) with the same good results as at first. It is noted that during the week preceding one of his visits his stomach had been so irritable that he had sometimes vomited after his meals, and the oleine had, nevertheless, not induced vomiting or rising in the throat. It should be stated that no alterations were made from the first in his other medicines, consisting of a mixture containing dilute sulphuric acid and a linctus for his cough.

W. B., nine years of age, was admitted an out-patient at the Infirmary on account of cachexia, February 16th, 1854. He was extremely thin, pale, and languid-looking. He was ordered a drachm of cod-liver oil twice a day, together with iron in quassia mixture, which was not, however, very long continued. He took the oil more or less regularly until the 18th of August, when I was informed by his mother that he had latterly suffered from great pain and tenderness on pressure, between the epigastric region and the navel; that she had traced these symptoms to the oil, and that it made no difference whether it was taken before or after meals. Cod-liver oil oleine in the same doses was now substituted for the oil. He took it with remarkable improvement of his general health, and without any complaint for nearly three months. It then occurred to me to try the effects of the residue in the preparation of the oleine, chiefly margarine. This was given for a few days on two occasions, but with considerable interval, in the same way as the oleine. It caused such nausea and "drawing pain," as he described it, in the upper part of the abdomen soon after taking it, that it could not be longer continued. It also appeared to cause obstinate constipation on both trials. On the latter occasion the bowels were not moved for an entire week. In both instances the oleine was resumed with the same beneficial results as attended it at first. I may add that, previous to my last note, January 26th, 1855, I on more than one occasion tried the same sort of cod-liver oil as that from which the oleine was obtained, but was very soon obliged to let the patient resume the latter. Precautions, it may be observed, were used with regard to these cases to test the merits of the oleine fairly. But in substituting the oil for it, or the reverse, any intimation to the patient of the change was also carefully avoided, so that the matter might be tested still more fairly.

The bad effects of the residue in the preparation of the oleine were remarkable, and, conversely, went to prove the truth of my theory, that in the digestion of fatty bodies it is the oleine they contain which is alone assimilated. The seat of pain and tenderness on pressure, in the case in which the residue was administered, was exactly that which might be expected from derangement of the duodenum in reference to the pancreatic functions. But, omitting all theoretical considerations, I would at present merely ask for a trial of the substitute I have proposed for cod-liver oil in certain cases. I believe that oleine can be administered, as far as regards digestion, in all cases where the oil is desirable.—*Med. Times and Gazette, July* 21, 1855, *p.* 58.

25.—*Glycerine as a substitute for Cod-Liver Oil.*—Dr. CRAWCOUR, of New Orleans, draws attention to the advantages resulting from substituting glycerine whenever cod-liver oil is indicated. It is quite as efficacious, is much less disagreeable, does not disorder the digestion, and may be combined with any other remedy. Besides exhibiting great anti-strumous power, it materially aids in the assimilation of salts of iron, especially the iodide. Quinine is soluble in it without the aid of sulphuric acid, and becomes divested of some of its bitterness. He gives from 1 to 8 drachms in an ounce of water daily. For it to be successful it is essential that it shall be quite pure; and both for this reason and its cheapness, Dr. Crawcour recommends Dr. Morfitt's process of decomposing oil or lard with hydrate of lime.—*Gazette Médicale, p.* 309.—*Med. Times and Gazette, Aug.* 25, 1855, *p.* 195.

26.—ON THE TREATMENT OF PNEUMONIA.

By Dr. C. H. F. Routh, Physician to the St. Pancras Royal Infirmary.

[There are but few diseases which are treated more differently by different practitioners, than pneumonia. The methods and remedies vary from the most simple, to the most heroic. In the General Hospital in Vienna, the treatment is almost entirely dietetic, they are simply left to nature. Dr. Todd of King's College Hospital, discourages blood-letting, and even tartar-emetic; he gives large doses of liq. ammon. acet. or citrat., and supports the patient from the first with animal broths, given frequently in small quantities, with a small amount of stimulus. From the statistics which we have been able to collect, we find that the treatment by blood-letting, conjoined with tartar-emetic, is, in the present type of disease, the worst, and the dietetic the best, especially in severe cases. The indications to be fulfilled are:

1. To diminish the general fever.
2. To relieve the local symptoms.
3. To check the tendency to death by depression.]

1. To diminish the general fever, especially the pulmonary and cutaneous respiration, both which last increase the hyperinosis. In pneumonia, as I have already said, apart from the peculiarity of the chest symptoms (although no doubt resulting from them), the pulse is unusually rapid, and the skin pungently hot.

(*a*) The quick pulse is, I fear, not sufficiently attended to in general. I believe that, as in fever, or puerperal fever, it is a very bad sign if it exceeds 140 or 160 per minute. This extraordinary frequency denotes diseased blood to a large extent; it is the evidence of a nervous shock, which may prevent nature from rallying. But, whether a pulse be rapid from nervous shock, or even inflammatory fever, its persistence is injurious, because the waste of the body and of its life, which is the blood, now undergoing the ordinary chemical changes in excess, is therefore the more rapid, and in the end will give rise to great debility. In pneumonia, therefore, to check if possible the material depressing tendency is a most important part of the treatment. The pulse must be reduced in frequency. The surest means to effect this is, I believe, *aconite*. The cutaneous temperature is equally certainly reduced by *oleaceous* inunctions; and therefore it is that I seldom if ever bleed, although I would not be so dogmatical as to say I never will. Besides, as before stated, bleeding fails in 53 per cent. of pneumonia.

To those who are acquainted with Dr. Fleming's admirable work on *Aconite*, and the experiments upon which he founded his conclusions, the efficacy of this remedy in checking fever must be well known. It acts upon the heart, directly reducing the frequency of its beats, as well as the number of the respiratory movements; and, if we can judge from the few cases of poisoning in man, it rather impedes, and in excess actually prevents, the coagulation of the blood. Unfortunately, however, aconite is feared and avoided in England as an internal therapeutic agent, because believed to be most uncertain in its effects: and this opinion is justified if we employ the ordinary tincture of the *London Pharmacopœia;* but it is a prejudice to apply it to the tincture of the alcoholic extract of the root of the aconitum napellus or ferox, both of which are to be depended upon. With children, I have more than once been surprised at the effects produced by it in allaying fever, even in comparatively small doses. The tincture of the extract which I have been in the habit of using contains one grain of the alcoholic extract of the root to twenty drops of alcohol; and the dose for an adult varies from half a drop to three minims. I have given it up to five drops to an adult three times a day; but, in this case, poisonous symptoms supervened—a sort of tetanic rigidity of the entire voluntary muscles, and a tingling sensation all over the body. In another case, where the dose ordered was three and a half minims three times a day, the patient, wishing to get well the sooner, as he supposed, took a double dose. Complete paralysis supervened, with loss of pulse, fainting, sickness, and vomiting. The pupil became so dilated that the iris was not to be made out. A simple purgative cured the first case; the second did not recover till two or three hours by stimulants, especially ammonia. The potency of this *preparation* is therefore manifest. One drop of opium has been known to poison

an infant; and, even for children under three or five, a quarter of a grain of Dover's powder, or one-twentieth of a grain, has often a marked effect. Four and a half grains of opium and two drachms of the tincture have been known to kill a man. There is no doubt that seven drops of the tincture of aconite before alluded to would have killed my man, if nature had not assisted him, and prudential measures had not been adopted. For practical purposes, I believe I may say that one drop of this tincture is at least equivalent to one grain of opium. I therefore use it with great care, especially with children, on whom I think it exercises an influence equally as strong and peculiar as opium. Thus, if one or two drops be added to eight ounces of water, although only half an ounce be the quantity given for a dose, *i. e.*, from one-thirty-second to one-sixteenth of a drop, and repeated every two hours, an effect is usually manifested on the feverish excitement in a very few hours. With an adult I never would now begin with more than two drops, repeating one drop every two hours till the pulse falls. But even this is a large dose; and, in most cases, one drop to begin with, and a quarter to half a drop repeated every two hours till the pulse falls, will be found sufficient. In its action, it must be carefully watched; the patient must be often seen; and great care must be taken that the party to whom its administration in our absence is confided, is trustworthy; and directly the patient looks pale, and feels faint, its use should be discontinued. Here, then, is a remedy to be preferred to bloodletting, because, while it is equally powerful in its action, it has the advantage of sparing his blood for the future contingencies of the disease.

(*b*) The peculiar heat of skin which exists in the first stage of pneumonia is believed, as I before stated, by several eminent observers, to be pathognomonic of the disease in the first stage. If it be made to include under this term the pulmonary congestion alluded to, I must fully concur in it. I believe that it is owing to hyperoxygenation of the blood in the *cutaneous* capillaries even more than to the hurried respiration in the lungs, which, in an inflamed lung, must be necessarily interfered with and defective, as occasionally evidenced by the lividity of the countenance. Following out Mr. Taylor's practice, and encouraged by the experiments of Messrs. Becquerel and Breschet on the effects produced by varnishing over the skin with various substances, I have been commonly in the habit of ordering my patients, especially children, to be rubbed over the entire body with a mixture of sweet oil and mutton suet; and I can speak in the most commendatory terms of its effect in cooling the surface of the skin, and reducing the fever; and this in cases where sudorifics had failed in producing perspiration. I can give no better explanation than that already suggested for these results: but I speak practically, and after extended experience: indeed, I may say I know no surer means, and I might add, no speedier remedy; for it is generally effective within three hours in reducing heat of skin and most of the unpleasant effects of anorexia. The disadvantage is the objection usually made to oleaceous inunction by adults. Probably, in some of these, a wet sheet or hydropathic packing would effect the same results.

My experience, however, of this mode of treatment is limited to a few cases of fever, in which it was followed with good effect; and the reports of Mr. Hegele of Augsburg, who states that he used it successfully in forty cases of pneumonia. The experience of Moreau, Moneta, and Compagnani, before referred to, tends to the same direction.

2. The second indication is to relieve the local symptoms by removing the local mischief and promoting expectoration. I shall best explain my practice here by speaking of the plan adopted under three heads. *a.* Remedies acting *generally* on the system, and at a distance from the affected part, by derivation. *b.* Remedies acting *locally* by derivation. *c.* Medicines acting locally and generally by relieving pain and promoting expectoration.

(*a*) Of these, there are three which I shall notice; pediluvia, Junod's apparatus, and purgatives. It is curious how rarely pediluvia are employed in pneumonia, particularly among adults. Abroad, indeed (although the why and wherefore I have never been able to discover), there is a belief that it is dangerous practice in inflammatory diseases of the lungs: and yet M. Junod's exhaustion pump, which acts precisely on the same principle, is favourably mentioned. It is generally always practicable to bring about deliquium by stimulating pediluvia. If the patient be placed in *the sitting posture*, and his feet, up to his hips nearly, placed

in warm water, the temperature of which is gradually raised by the addition of more and more boiling water, as the patient can bear it, he will usually faint in about twenty minutes. I have seen a strong, robust, plethoric man, with high fever and active cerebral congestion, made to faint in twenty minutes by this simple means; and the fever has given way, on his recovering his senses, to copious perspiration. In this manner, we may often produce all the effects of a good venesection and yet spare our patient's blood. In simple pulmonary congestion, indeed, no other remedy is required.

Purgatives, since the prevalence of cholera, have not been much in vogue; yet their derivative effects are well marked in many instances, and as such they are most efficacious in the outset of pneumonia. I need not, however, dwell upon this point, as it will be readily admitted, not to speak of their beneficial effect in preparing the system for the use of other medicines, and the clearing of the *primæ viæ*.

After all, however, of all measures applied at a distance from the affected part, to derive from it, none is so effective as Junod's exhausting apparatus. Pounds of blood may by its means be drawn from the body and collected in the extremities; and in this manner all that blood-letting can do is effected. The local congestion is removed, and comparative ease is obtained, and again the blood is saved. The quantity of blood in the system is not necessarily favourable to hyperinosis or inflammation. And if this be impeded, by retarding the rapidity of its flow through the lungs by aconite, and if the skin be rendered nugatory as a respiratory organ, by oleaceous inunction, we hold both general and local disorder under control, and may soon expect recovery. I hope that this apparatus may be, ere long, more generally employed in England. It has done good service already abroad; and we should not hesitate to adopt a good measure merely because it varies from our usual routine.

(*b*) Among the local derivants, cupping, leeches, and counter-irritants are much employed. Of the good effects of the two former I am fully satisfied. But here, again, I dissent from their employment otherwise than as an exceptional practice. I believe this is very seldom necessary, and particularly leeching with children.

I have seen leeching chiefly used in the practice of others. It certainly has cured, and very generally does cure, the pneumonia; but it commonly kills the patient, or lengthens unnecessarily his convalescence. Among adults, its effects are more salutary; I would almost say especially so in cases treated by venesection. If M. Bouillaud's cases recover, I believe they owe it to the two average cuppings and the forty leeches. But I think either is generally unnecessary. *Dry cupping* will do all that is required. It will, if *extensively* applied, and herein lies the secret of its successful employment, effect all that the ordinary cupping or leeching could do, without weakening the patient. The employment of *blisters* is variously spoken of. Some say they are injurious, as giving rise to so much distress, and prefer mustard poultices. This depends of course a good deal upon the patient's feelings. But I think more depends upon the *manner* in which they are applied. The cantharidine mixture, or the solution of the acetum lyttæ in chloroform, vesicates the skin very speedily, and if the surface be covered with cotton wadding immediately after the application, the vesicle soon rises, and with comparatively little discomfort to the patient. And if the wadding be repeated every two or three hours, repeated vesicles will form, which may be successively cut. In this manner, the local distress will be greatly relieved. I have seen a patient with mitral disease and great pulmonary congestion, of *several weeks' duration* (and in whom blood-letting, either local or general, was contraindicated) lose in this manner quarts of serum, and be so far relieved thereby, as to be able to get up and resume her ordinary occupations; and, indeed, in one case, the patient, who had been unable to walk for months, found herself so far recovered as to be able to walk up to my house and back, a distance of a mile and a half each way, to visit me, apparently, as she assured me, without much inconvenience. I am aware this is strong language; but at the risk of being called an enthusiast in my advocacy of blisters, I am bound to speak from my own experience.

It blisters, however, be objected to, I think that flannel dipped in turpentine, *applied to the chest, and* especially as a sequence to the dry cupping, is the next

best remedy. Patients are almost always able to bear this species of counter-irritation in preference to mustard poultices, and for a longer time, and the effects are certainly less painful, and as lasting. Here, also, however, the surface over which it is applied should be large. The remedy, if only partially applied, is of little value.

Among the medicines which promote expectoration, &c., I have found the most useful to be—

(*c*) Small doses of calomel, and tartar emetic in quarter grain doses, given at first. I give the calomel as an alterative, or occasional purgative, not with a view to touch the mouth. The tartar emetic is certain as an expectorant and sudorific. The secret of its employment, I believe, is to give it in the early periods—the first three or four days—and not to persist in its employment too long, else it weakens the patient a good deal, and depression of the system will not cure pneumonia. By the use of these remedies the inflammation may be generally checked by the third, fourth, or fifth day, and the fever so reduced as not to require more active treatment. So soon as the fever, however, is reduced, and even before, if any irritative or hectic excitement supervenes, I conjoin cod-liver oil. I will not here give an explanation of its operation; I must be content to speak from practice, and this is highly encouraging. It possesses one advantage, my patient often looks better, fatter, and stronger at the end of his convalescence than he did previously; and this is always a favourable and agreeable result to both doctor and patient.

3. The mortality in pneumonia I have stated to be large in proportion as the tendency to death by exhaustion exists. To obviate this, from the first, I prescribe moderate quantities of beef-tea. I would rarely give the patient the *diete absolue* of the French. The more prudent diet appears to be one of the nature of the middle diet of an hospital; and this even in what are called dynamic pneumonias, as opposed to the typhoid varieties, in which stimulants and nourishing aliment are from the first necessary. I have not yet tried the plan, but it appears to me as possible that admixture, in soups, of large quantities of salt, might be found useful in improving the character of the blood, dissolving the excess of fibrin, thus facilitating its removal, and generally by augmenting the quantity of chlorides in that fluid.

The treatment I recommend is—

(*a*) Reduce the fever by aconite. (*b*) Relieve the local symptoms by dry cupping, Junod's apparatus, pediluvia, purgatives, blisters, avoiding as much as possible all abstraction of blood, local and general. (*c*) Promote expectoration by small doses of tartar emetic, chiefly at the beginning of the disease; and (*d*) give small alterative doses of mercury, if necessary; and, lastly, rather support your patient by mild emollient diet. In this manner you best avert the tendency to death, and diminish the mortality.—*Association Med. Journal, June* 8, 1855, *p.* 533.

27.—ON THE NATURE AND TREATMENT OF CROUP.

By Dr. Hönerkopf.

The chief object of this paper is to call renewed attention to the efficacy of sulphate of copper in the treatment of croup. The little favour it has hitherto met with he believes due to its being considered a poisonous substance, and one, from its irritating nature, ill-suited to an inflammatory disease. As to the first point, he says he has employed it in 90 cases without any ill effects, although he administered 2846 grains, or an average of 31½ grains per case. In 15 cases the average reached 77 grains. One child took in eight days 216 grains, or a daily average of 27 grains, and another 40 grains per diem for three days. No evil consequences resulted in any case, and convalescence was much more rapidly established than after antiphlogistic treatment. In treating the poor, who are quite unable to pay for leeches, the economy of this plan is also worth consideration. In the author's cases the duration of the treatment varied from 1½ to 2 days upon the average.

As to the other point, Dr. Hönerkopf reviews the series of symptoms, in order

to show that croup is not an inflammatory disease; but here we need not follow him, merely observing that when he states the effusion of pseudo-membrane is no essential feature of croup, and only occurs in about half the cases, that he must include in his 90 cases, several that others would characterize as false or spasmodic croup, a far more curable affection. The great number of cures he met with (77 in 90 cases) also confirms this view. From some trials he has made, the author is disposed to believe, that small doses of the copper, given for a considerable period to children who are much predisposed to, or who have already suffered from croup, may exert some prophylactic effect. As a curative agent he employs it solely, giving a solution of from 6 to 8 grains in 1 oz. of distilled water, from a tea-spoonful to a half or whole table-spoonful. The ease or difficulty with which vomiting is produced, regulates the frequency with which the dose must be repeated; for the torpor of the nerves of the stomach increases with the progress of the disease, and the difficulty of producing vomiting becomes a measure of the severity of the affection. While at the beginning, in slight cases, and towards the decline of the disease, small doses of emetics suffice, much larger doses are required when the malady has continued some time, or is very severe; and after a certain point vomiting cannot be produced at all. A dose is given every 10 or 15 minutes, for four, six, or even eight times, until the more violent symptoms are abated, the quantity being regulated by the severity of the case. Occasionally such improvement is observed after the very first dose. The cough is first less troublesome, there is less anguish and dyspnœa; and, lastly, the croupy sound is exchanged for a mucous râle. The drug is now given in smaller doses every 20 or 30 minutes, and at still longer intervals. In bad cases, if even slight croupy sound remains, it is still continued every two hours, as a relapse is to be feared on the next night. It is also desirable that the patient should not be left without the means of meeting a recurrence, even on the second and third night; but a couple of doses will then usually suffice.

If in very bad cases we can scarcely perceive any change in the croupy sound in twelve or more hours, we must not yet despair, for the improvement is often sudden and unexpected. When the other symptoms have improved but this tone remains, we must never relax, for the enemy only sleeps, and may break out again with renewed vigour. Everything depends upon the energy of the practitioner, who must at first see the doses forced down the child's throat, or they will be neglected, and especially as the child's condition and the friends' carelessness require watching the next evening or two, when relapse is so common. Although vomiting is not the object of the copper, and excited by other means has not like efficacy, it is the measure of its success. How far the remedy has to be carried depends upon the amount of success. A single grain exciting vomiting once or twice may suffice in slight cases, while in others 100 grains producing vomiting from 80 to 100 times may be necessary in others. Sometimes when the excitability of the stomach is quite exhausted, and large doses fail to excite vomiting, this may be roused again by giving two grains of musk every few hours.

We have already said that cases of false croup must have been included among the author's 90; and we may here reproduce M. Guersant's summary of the various forms of angina. He observes that, prior to his father's and M. Bretonneau's writings upon the subject, pseudo-membranous angina, croup, and other affections were confounded together. Those writings and daily practice show that there are five distinct species of angina.

1. *False Croup* (stridulous laryngitis) which comes on suddenly and terminates as a cold, not producing false membranes, and being almost always curable. 2. *Pharyngeal diptheritis* is characterized by false membranes lining the tonsils and pharynx, to which they are usually confined. It is generally curable by caustic applications. 3. *True croup* (pseudo-membranous laryngitis) is characterized by the development of false membranes in the larynx. These may be formed primarily in and confined to the larynx, or they may spread from the pharynx or trachea. This diptheritic lesion, which is usually of slowish formation, and sometimes met with more than once in the same subject, is, so to say, localized and produces death by asphyxia. 4. *General diptheritis*, angina maligna. The true diptheritic poison, which kills the patient just as glanders kills the horse, is an insidious and contagious disease, and is indicated by great prostration, enlargement of the cervical

glands, and the deposition of false membranes in the nasal fossæ, the pharynx, sometimes the larynx and bronchi, the vulva, and on blistered surfaces. Neither this disease nor croup causes any gangrenous odour. It does not kill by asphyxia, so that tracheotomy is here contra-indicated. The disease is usually fatal, the patient sinking exhausted, and tonics, with cauterization of the surfaces, are the only means that offer any hopes of benefit. 5 The *true gangrenous angina* destroys any of the parts it attacks, as the tonsils, the uvula, the velum or pharynx, and may complicate any other angina, just as all gangrenes may complicate or terminate all inflammations. This angina is far rarer than any other, is not accompanied at first by false membranes, and always ends fatally.—*Gazette des Hôp.—Dub. Hosp. Gazette, June* 15, 1855, *p.* 156.

28.—*Turpentine Bath.*—Dr. MOREAU speaks highly of a bath of turpentine vapour in catarrhal affections, rheumatism, and severe neuralgias. The patient is shut in a room into which the vapour is introduced from without—varying in temperature from 45 to 102 degrees. It produces copious perspiration, which greatly diminishes the temperature of the body.—*American Med. Monthly, Jan.* 1855, *p.* 68.

ORGANS OF DIGESTION.

29.—PRACTICAL REMARKS ON THE TREATMENT OF DYSPEPSIA.

By Dr. JAMES J. ROSS, Golspie, Sutherlandshire.

Dyspepsia with Intestinal Disorder.—I here intend to do little more than simply refer to ordinary constipation of the bowels, though this is a point in almost all cases of dyspepsia which requires to be attended to, and obviated by such means as are suited to the particular case. In general, purgatives should be combined with bitters, so as not to impair the constitutional powers, and given in such quantities as will just keep the bowels regular, without purging. The following is a very good formula, which may be continued for a long time, without losing its effect, or any necessity for increasing the dose:

No. 14. ℞. Fol. sennæ ʒ ii., rad. gentian. ʒ ss., rad. zingib. 3i., aq. bull. ℔ii., inf. per noctem, cola et adde sulph. magnes. ʒ i-ii., t. cardam. co. ʒ i., spir. ammon. aromat. ʒ i. M. ʒ iss-ii. for a dose in the morning or at bedtime.

Neither do I mean to do more than simply notice the opposite of this—bilious diarrhœa—induced by excessive or perverted secretion; though this also must not be neglected.

But there is one form of intestinal disorder, which is not very uncommon in dyspeptic cases, which is very annoying to the patient, and which is sometimes very troublesome to the physician. Two or three hours after a meal, griping pains begin to be felt in the lower part of the abdomen, and across the region of the arch of the colon, which give a great deal of uneasiness, without amounting to the acute pain of colic, and which are sometimes attended with a desire to go to stool, without actual diarrhœa, and without the tenesmus of dysentery. The irritability of the intestinal mucous surface seems to be morbidly increased, so that the passage of the food over this surface gives pain; and the muscular tone of the gut seems to be at the same time depressed, without either such vascular or follicular irritation as leads to diarrhœa or dysentery. Exposure to cold, and especially exposure to wet, is the common cause of this affection; it is always aggravated after eating; it will go on, and continue indefinitely, and purgatives rather increase than relieve it.

Now for the treatment of this disorder, I can very confidently recommend the following medicine, which I first became acquainted with, from its having been prescribed, in my own case, by the late Dr. John Inglis Nicol, of Inverness, for a severe attack of this kind, brought on by a wetting, at a time when my digestive organs were in a weak state after a recovery from fever. I have been fond of it ever since in this kind of intestinal disorder, and have seldom been disappointed with its effects.

No. 15. ℞. Tinct. cinchon. co. ʒiss., t. calumbæ ʒiss., t. strych. n. vomicæ ʒss. M. A dessert spoonful in a glass of water three times a day, an hour before meals.

If necessary, the natural action of the bowels should at the same time be kept up, by a daily compound rhubarb, or colocynth, and henbane pill before dinner or at bedtime.

A very similar affection occurs in young children, between five and ten years of age, either as a sequela of remittent fever, or without having been preceded by febrile symptoms:—loss of appetite, flatulence, acidity, gripings, irregularity of bowels, and enfeebled tone of the general system. In them we might not like to make free with nux vomica; nor is it necessary, for we will generally succeed in relieving them by giving 3 to 5 gr. rhubarb, with as much carbonate of soda, twice a day, about a quarter of an hour before breakfast and dinner.

Dyspepsia with Impaired or Lost Appetite and Slow Digestion. (*Deficient secretion.*)—Of all the forms of dyspepsia, this is the one best entitled to the name of "indigestion," it is really indigestion—digestion performed imperfectly, feebly, slowly, and with difficulty—atonic dyspepsia. The appetite is always impaired, sometimes abolished; the stomach feels that it is not fit to do much work, and, therefore, it does not desire much work to do; it is soon satisfied with food. The patient feels stuffed after a very moderate meal, and says that it remains "like a lump" in the stomach. There is a heavy feeling of uneasiness and fulness across the epigastrium, not amounting to pain, and sometimes a feeling of distension—a desire to loosen the dress over this region. With this there is languor and laziness—a kind of sleepy inactivity. The bowels are slow too; constipation generally exists, and where there is no apparent constipation—where the bowels act daily—still the evacuations are hard, dry, and lumpy, in detached masses, not properly formed, and sometimes these are followed by liquid fæces; or there may even occasionally be diarrhœa for a day or two. The tongue is slimy, without being furred, and frequently, in the morning, there is a brown dry streak down its centre, an accumulation of brownish sticky sordes on the teeth, and an effort to hawk up dry mucus from the throat and pharynx. The digestive organs, in short, are altogether below par; they have probably been overtasked before, and now they flag; their secretion, by which they were enabled to do their duty, has failed, and therefore that duty is no longer performed.

This variety of indigestion may come on gradually in a chronic form from the first, or, as already mentioned, it may succeed, and be the consequence of, one of the more acute states.

In its treatment, we must first remove any remains of these, or any biliary complication that may be present, by the means already mentioned; and then—or at once if there be no such complications—our object must be to restore the tone of the stomach, as regards its nervous, its muscular, and its secretory energies, taking care to sustain at the same time a due action of the bowels.

The simplest case of this variety of dyspepsia is, where the principal and almost only symptom is loss of appetite, there being little or no discomfort at stomach, and the bowels being regular. Here the dilute sulphuric acid often suits well; or with it, we may give the sulphate of quinine, in small doses—not more than ¼ gr. three times a day, an hour before meals; or a bitter infusion, such as

No. 16. ℞. Rad. calumbæ 3ii., cort. cinchonæ 3ii., cort. aurant. 3i., cort. cinnamom. 3i., sem. coriand. 3i., aq. bull. ℔ii. M. inf. per horas xii. et cola. A wine glassful three times a day, an hour before meals;

Or the infus. gentian. co. with a little liquor potassæ. As a general rule, I think, in these cases, the milder and lighter vegetable bitters are to be preferred to the stronger tonics.

Where, with want of appetite, there is also constipation, with tonics as above, the bowels must be regulated by a mild aperient pill, given daily, before dinner or at bedtime; or, what is better, the aperient and tonic may be combined in the same prescription. When this is done, a less dose of the former will be effectual, and the patient is saved from swallowing a multiplicity of medicines at different hours. *Quinine may* be combined in a pill with a little ox gall and extract of *aloes; or we may use the* following, which I find an excellent formula in such

cases, varying, of course, the quantity of the epsom salts to suit the requirements of individual patients:—

No. 17. R. Sulph. magnesiæ ℥i., acid sulph. dil. 3i., tinct. gentian. co. ℥i., aq. ℔i. M. Two tablespoonfuls twice or thrice a day.

Again, in a case of this form of dyspepsia, where not want of appetite, but want of digestion, is the predominating symptom, where the patient complains most of "a lump at the breast," where the food is felt to remain long undigested in the stomach, we have to endeavour to restore the gastric secretions, deficiency of which constitutes the main pathological character of the complaint. Now nothing is found to answer this purpose better than the pulv. ipecacuan. in doses of gr. ss. or gr. i. twice a day. A full dose of it as an emetic, stimulates the stomach and largely increases its secretions for the time; but then it exhausts the organ, weakens its tone, and leaves it worse than at first, just as a full dose of a purgative stimulates the bowels, increases their secretions, and then leaves them more constipated than before it was given. But in a case of habitual constipation, we don't give full doses of purgatives, but such doses merely, as will gently solicit the natural action of the bowels, and gently keep up their proper and healthy secretions; and these doses we combine with tonics to prevent depression of their muscular tone, and sometimes with anodynes to prevent nervous irritation. It is exactly in the same way, and I believe on the same principle, that we use ipecacuan. in slow digestion; we don't give it in emetic doses, greatly to increase secretion, and induce violent muscular contraction; but in small doses, gently to excite the gastric glands and follicles, and gently to stimulate muscular action: and these doses we combine with mild tonics, such mild aperients as are at the same time somewhat tonic, and occasionally also with anodynes, thus:—

No. 18. R. Pulv. ipecac. gr. ss-i., pulv. rhei gr. iii., ext. gentian. gr. i. M. ft. pil. To be taken twice a day, shortly before breakfast and dinner.

Sometimes instead of the ext. gentian., I use the ext. hyosc. or conii. The effects of this remedy are admirable and speedy, if the patient pays due attention to the quantity and materials of his food.

I do not here, or hereafter, intend laying down rules for eating and drinking in dyspepsia, for I think it is useless to do so; the general rules of diet in such cases are well enough known—not to eat too much, too fast, or too often—that, I believe, includes all that need be said here. And after all, it is a point which each patient must find out, and which he very soon does find out, for himself; though whether he will always have sufficient self-control and fortitude to obey the dictates thus given him by his "inner man," is another matter altogether. But unfortunately his doctor can no more oblige him to listen to, and follow the promptings of, this physical conscience seated in his stomach, than his minister can oblige him to be guided by the "still small voice" of the moral conscience in his mind. The one may prescribe rules of diet, and the other may preach rules of conduct, but in both cases the party himself must work out his own cure.

After the feeling of stuffiness and weight, from slow digestion, has been removed by the ipecacuan., taken in this way for eight, ten, or fourteen days, we may then complete the cure by the sulphuric, nitric, or nitro-muriatic acid, or any ordinary bitter tonic.

I have already mentioned that, on entering upon the treatment of a case of this kind, any existing biliary complication, however slight, must first be removed by appropriate means. This done, tonics will then be required, and will act well; and it is in this case, I think, that iron is the tonic particularly indicated. It is probable that the liver having been torpid and the bile not duly excreted, its elements have contaminated the blood, and affected the composition and vitality of its globules, and that the iron exerts its specific effects in restoring the qualities of the circulating fluid. But be this as it may, I am sure of the fact, that in such a case iron does more good than anything else; and I am partial to it in the following form:—

No. 19 ℞. Mist. ferri co. ℥vi., infus. quassiæ ℥vi. M. Two tablespoonfuls twice a day.

This should be continued for a considerable time, till the local tone of the stomach, and the general strength of the system be quite restored—in short, till the patient has the *conscious feeling of health* about him once more. And for the

first week or two of its use (or at any time after, if the tongue threatens to be yellowish, or greenish, or slimy), it is a good precaution to secure a healthy action of the liver by the following pill:—

No. 20. ℞. Pil. hydrarg. gr. xii., ext. taraxaci ʒ ss. M. ft. pil. xii. Two every second or third night at bedtime.

Dyspepsia, with or without Vomiting of matters, mucous or ropy, acid or rancid, Heartburn and Pyrosis. (Excessive and perverted secretion.)—The simplest case of this kind is where there is merely acidity at stomach, for which a little of any alkali may be given—soda, potass, or magnesia—before meals, or when the acidity is felt. This produces perfect relief for the time; and if, after several days' use of these, till the state of the urine becomes normal, we give the carbonate of potass or soda, or the liq. potassæ in infus. gentian. c., or infus. calumb., we shall generally succeed in restoring a healthy tone of stomach, and a sound, vigorous, and healthy digestion, provided always that the patient be careful to avoid those articles of food and drink which his own experience has taught him are most apt to produce acidity. In such cases, Dr. Seymour prefers a powder of rhubarb, calumba, cinnamon, and carbonate of soda, given before dinner, or at bedtime, for a fortnight.

Where the case is somewhat more severe, amounting to decided heartburn, the treatment is still much the same—alkalies to palliate uneasiness, and tonics with aromatics and occasionally sedatives, to restore tone and diminish irritability. The following are good formulæ:—

No. 21. ℞. Inf. gentian. co. ʒ ii., aq. calcis ʒ ii., t. hyoscyam. 3 i. M. two or three times a day.

No. 22. ℞. Aq. calcis 3 vii., sp. ammon. aromat. 3 ss., t. hyosc. 3 ss. carb. magnes. ℈ i. M. Draught twice a day.

Regular pyrosis is much more difficult to treat, and many different medicines may have to be tried, one after another, before a cure is effected; a great variety of them has, accordingly, been recommended by various authorities. Bismuth is, perhaps, the one which has the most numerous testimonies in its favour, and it very often, certainly, proves an excellent remedy, but it must be confessed, also, that it very often fails. I think it is most successful where the pyrosis is slight, where the quantity of ropy fluid is not very great, where it is ejected by expuition without effort, rather than by actual vomiting, and where it is of an acid character. Here six or eight grains of bismuth, with as much magnesia in almond emulsion, or any aromatic water, with a little mucilage, two or three times a day, will often prove very efficacious. Dr. Graves recommends six grains of bismuth, and 10 grains of magnesia, with 20 grains of gum arabic powder, to be put in a quantity of boiled milk, allowed to cool, and then to be stirred up and swallowed, two or three times a day; each dose of this kind to be immediately followed by 1-16 grain of mur. morphiæ in a tablespoonful of water. I have repeatedly followed his directions; but I cannot say that I have found more good from the medicine so given than when administered in the more ordinary and simple way. Where the quantity of pyrotic fluid is still small, but is ejected by vomiting, I am partial to a combination of bismuth with pulv. calumbæ gr. v. viii., given shortly before meals; and if the discharge be attended by pain or crampy feeling at the stomach, it is well to add ¼ or 1-12 grain of mur. morph., or ½ or ¼ grain of opium. I do not think bismuth has any effect in allaying that kind of pain which depends purely on morbid sensibility of the stomach; but it certainly has very considerable effect in the pain of this form of dyspepsia, which depends on morbid and excessive secretion. Where this pain is severe, and where it is attended by cramp of the stomach, the following will be found to give great relief:—

No. 23. ℞. Ox. bismuth. ℈ ii., carb. magnes. 3 i., pulv. aromat. ʒ ss., mucilaginis ʒ i., t. opii 3 i., aq. cassiæ ʒ v. M.

Two tablespoonfuls to be taken with an equal quantity of hot water, when the pain is severe, and repeated if necessary. Sometimes, however, in cases of this kind, the pain is so severe, and the cramps or spasms so violent, that it is absolutely necessary to give full doses of tr. opii, and repeat them every hour or two hours, till relief is procured.

In cases of dyspepsia, with excessive secretion, where the eructations of vomiting *are not acid, but tasteless* or rancid, or of a rotten taste, the acids do most good;

the nitric, or nitro-muriatic acid, or what answers very well, the acetic acid, with half a drop or a drop of creosote, given shortly before meals.

Where the quantity of secretion is very large—and it is sometimes incredibly so—we act as we do in other fluxes; we have recourse to astringents to check it. Dr. Budd recommends logwood as being most effectual in such cases; thus—

No. 24. ℞. Hæmatoxyli ʒi., pulv. cinnamom. ʒi., aq. bull. ʒx. M. inf. per horas quatuor et cola—ʒiss. two or three times a day.

My own favourite remedies in such cases, are the pulv. kino c., and the nit. argenti. I have not yet succeeded in discovering indications to guide me in prescribing the one rather than the other. I have sometimes fancied that I had done so, but by and by a case would occur, which showed me it was nothing but a fancy, and scattered it to the winds. I find that I must just submit to be empirical in their use: I give the one, and if it does not do, I then try the other. Of the compound kino powder, 5 grs. may be given three times a day, either alone or with as much bismuth, or pulv. calumbæ, or both. The nit. argent. is given in pill, in doses of a ¼ or ½ gr. three times a day, with or without ¼ gr. of opium; and I generally combine it with a little pil. rhei c., and extract of taraxacum or hop. The oxide of silver, I think inferior to the nitrate in cases of pyrosis.

In obstinate pyrosis, Dr. Burne recommended calomel gr. ss. with opii gr. ¼, to be given after breakfast and dinner for many weeks together, unless the gums became affected, when he omitted the calomel, and continued the opium alone. Others have recommended the powder, or extract of nux vomica. Of these two plans of treatment, I should be inclined to prefer the latter.

In chronic cases of excessive secretion, unattended by any congestive action, and without much irritability of stomach, tannin would probably be found useful; but I have not tried it sufficiently to enable me to speak with confidence of its effects.

Simple Dyspepsia, with pain after Food, with or without Vomiting (*Gastralgia, Morbid Irritability of Stomach*).—This is a very common form of dyspepsia, particularly among females. It might be called nervous dyspepsia. It is characterized by two symptoms, pain more or less severe, and vomiting more or less violent. In one patient, the pain is the predominating symptom; in another, the vomiting; while in a third, both are well marked, the pain coming on first, and continuing till it becomes intense, when vomiting succeeds, empties the stomach, and gives relief. These symptoms generally come on after meals, sometimes instantly, on swallowing food, at other times, not for a quarter of an hour, an hour, or even longer. It is a common expression of patients, that if they could live without eating they would be well. This, however, is not always the case; sometimes the pain and vomiting are experienced before breakfast in the morning, but in all cases they are always aggravated after food, and equally aggravated after food of any kind, after the lightest of the farinacea, as after the strongest animal diet. In a case of simple nervous dyspepsia, the sensation at the epigastrium is one of pure pain, like neuralgia elsewhere, without heat, and without acidity. The tongue may be clean and even pale. If we press the epigastric region during the presence of the pain, it is increased—in other words there is tenderness, but only during the presence of the pain, at other times pressure is perfectly well borne. By and by vomiting comes on, and the stomach may either at once and easily empty itself of its contents, or it may not succeed in doing so till after considerable retching. This done, relief is obtained, and the patient is well till the next meal. The food comes up as it went down, more or less digested, but perfectly pure and sweet, and without more than the natural mucus of the stomach being mixed with it. If the retching have been severe, there will of course be some bile along with it; but this is always the consequence of severe vomiting, and we should commit a great mistake did we, on this account, set the case down as "bilious," and treat it by mercurial purgatives. As great a mistake would be, to refer the pain to inflammatory action, and treat it by leeching and sedative doses of calomel. The appetite varies; it may be quite unaffected, or it may be more an empty craving at stomach than a healthy appetite.

When a case of this kind continues long, the patient is apt to become pale and nervous, and falls under the next head of our classification—anæmic dyspepsia with sympathetic disorder. *Or from the first*, it may be more or less complicated with

acidity and excessive secretion; its own special character of morbid irritability being still, however, sufficiently predominant to mark its type and guide our diagnosis and treatment. Thus, we often see a case, where, immediately after a meal the peculiar pain of nervous dyspepsia comes on, continues for an hour or more, and then ends with a regular attack of pyrosis and vomiting of a large quantity of its peculiar secretion; or, without actual pyrosis, the pain may be combined with heartburn acidity, and the vomited matters may be quite acid and sour. In short, the two forms may be variously combined, and apparently confused; but a little care on the part of the patient in observing, and on the part of the physician in investigating, the symptoms—their combination and sequence—will sufficiently serve to show which form any particular case in the main belongs to.

In the simple form of dyspepsia from morbid irritability of stomach, where nervous mobility or a kind of neuralgic irritation is the pathological condition, prussic acid has the most decided good effects. It allays pain, prevents vomiting, and so blunts the morbid sensibility of the stomach, as to allow it duly to perform its function of digestion. It may be given in plain water, or almond emulsion, or a bitter infusion, about a quarter of an hour before meals. I generally prescribe it thus:—

No. 25. ℞. Acid. hydrocyanici (*Scheele's strength*) gtt. xvi., t. calumbæ ʒss., aq. font. ʒiiiss. M.

A tablespoonful three times a day, increasing the quantity up to gtt. xxiv., which, of course, raises each dose of the acid from two to three drops, beyond which I rarely find it necessary to go. If, with the pain, there be also acidity or heartburn, it may be given thus:—

No. 26. ℞. Acid. prussic gtt. ii.-iii., carb. sod. ℈i., t. gentian c. 3ss., aq. ʒi. M. three times a day;

and if the vomiting be severe and continued, the following draught will be often found effectual:—

No. 27. ℞. Acid. prussic gtt. ii.-iii., creosot. gtt. i.-ii.-iii., liq. morph. gtt. xx., carb. soda, gr. xx., aq. ʒiss. M.

The prussic acid seems most applicable to those cases where the pain comes on very soon, or almost immediately, after food. And I think it is most useful, where the pain is the leading feature of the case, that is, where there is rather morbid sensibility than morbid irritability of the stomach. I think its power in allaying vomiting is more secondary; that it does so by first obtunding the nervous sensibility of the organ; at least, I have found it do more good where the vomiting is preceded by pain, than where it is not.

In simple vomiting of the food from atony of the stomach, calumba is an admirable remedy: either five or ten grains of the powder two or three times a day, or according to the following formula:—

No. 28. ℞. Infus. calumbæ 3vi., liq. potass. 3iss., t. humuli, 3iii., aq. piment. ʒiss. M. One or two tablespoonfuls twice or thrice a day.

Perhaps the next best remedy to prussic acid in this form of dyspepsia, is the nitrate of silver, or the oxide, ¼ or ½ gr. of either three times a day, in pill.

When the pain is longer of coming on after a meal—an hour or more—the case still belonging to this same variety of dyspepsia, the utmost advantage will be derived from that most admirable prescription of Dr. Abercrombie:—

No. 29. ℞. Sulph. ferri gr. ii., pulv. aloes gr. i., p. aromat. gr. v. M. Three times a day.

This is a medicine of the good effects of which, in such cases, it would be impossible to speak too highly; but it is so well known that it is unnecessary for me to do more than thus simply add my own humble testimony to its merits.

In those mixed cases to which I have referred, of morbid sensibility and irritability of stomach, combined with pyrosis and excessive secretion, the nit. argent. often suits well, as it meets both points; or what often suits as well or better, we may give ℞. No. 25 shortly before meals for the former, and then, when the latter begins to be felt after meals, use ℞. No. 23, as above directed.

In some cases, which must be referred to this order of dyspepsia, wherein the *only* symptom was painful digestion, without vomiting, and without the heaviness *and weight of slow digestion*, I have found the following very useful:—

No. 30. ℞. Ext. hyosc. gr. ii., ext. gentian. gr. ii., ext. stramon. gr. ss., pulv. opii gr. ¼. M. Pill to be taken half an hour after meals.

In some such cases, too, I have found the combination of prussic acid with morphia succeed, after it had failed given by itself: Thus,—

No. 31. ℞. Acid prussi. gtt. xxxii., liq. mur. morph. ℥iii., mist. amygdal. ℥viii. M. A tablespoonful three times a day.

The treatment of nervous dyspepsia often fails of success, not from any want of efficacy in the remedies, but from want of perseverance in the patient. As soon as the pain is relieved, and the vomiting ceases, the medicines are thrown aside. But this wont do; they, or at all events the tonic portion of them, must be continued till the vigour of the digestive organs be quite restored, or a relapse is certain to occur.

Anæmic Dyspepsia, with Sympathetic Disorder.—Any form of dyspepsia, if long continued, may, through the imperfect nutrition of the system which is its necessary effect, lapse into this variety; but it is a more frequent consequence of nervous dyspepsia than any other. At the same time, it must be borne in mind, that, though the dyspepsia may be the primary disorder, leading to anæmia secondarily, perhaps as often the anæmia is the primary affection, the dyspepsia and sympathetic affections of other organs being secondary to, and consequent upon it. As regards treatment, fortunately this makes little difference, as in almost all cases, if the system can be put to rights generally, a corresponding improvement will take place in the digestive and other organs locally.

For this purpose, the usual treatment of anæmia must be put in force: exposure to fresh air and sunlight, exercise short of fatigue, avoidance of all mental irritation and the wear and tear of business, nutritious diet, with regular hours, and, in the way of medicine, some one or other of the preparations of iron. The sulphate answers well alone, or if the bowels require assistance, combined with aloes, as in Abercrombie's formula (℞. No. 29); or, in solution with sulph. quinæ and sulph. magnes. and the dilute sulphuric acid, or in pill with quinine, camphor, and the ext. aloes, with ext. hyoscyami. In females, where there is also amenorrhœa, I am very fond of giving 30 drops of the tinct. mur. ferri, morning and evening, and a pill daily at dinner-time of the sulph. ferri, pulv. aloes, and ext. conii, 2 grains of each. When the appetite is deficient, the iron may be given with any of the compatible bitters, as quassia or calumba. The carbonate is a useful form, either in powder alone, or with rhubarb and calumba, or in the shape of Griffith's mixture: some have recommended it as being most energetic when taken quite freshly prepared—in fact at the moment of precipitation, as in the following prescription:—

No. 32. ℞. Carb. sodæ ℥i., tinct. calumbæ ℥i., aqua ℥iss. M. et solve, et dein adde t. mur. ferri ℥i. M. Draught to be taken twice a day.

In fact it is not a matter of much consequence what particular form the iron is given in, so it be continued long enough. As a general rule it is best given shortly after meals. Those who can afford it may combine the advantages of travel and change of society with the remedial benefits of iron, by a temporary sojourn at a chalybeate spring.

Of the sympathetic affections concomitant with dyspepsia, disorder of the heart's action is perhaps the most frequent. One form of it is sometimes met with in bilious dyspepsia; the heart's action is slow, and labouring, and irregular: it sometimes seems as if it were going to stop altogether, giving a few feeble distant beats, the impulse of which does not reach the artery at the wrist, so that the pulse intermits; and then, after one or two instinctive and involuntary long-drawn sighs, it gives a violent thump, and goes on again. It requires no special treatment; it very soon disappears when all hepatic congestion is removed by the remedies proper to the circumstances. It is worthy of remark, however, that these circumstances are sometimes exactly reversed; obstructed circulation through the right cavities of the heart may be propagated backwards along the vena cava ascendens, so as to cause venous congestion in the liver, and give rise to "biliary" disorder, and even a jaundiced tinge of the skin. And we shall find that, after relieving the loaded heart by a few leeches, and small doses of antimony, digitalis, acetate of lead, *or the like, these symptoms* will lead to very gentle mercurial

alteratives; while, unless this is done, they will resist the most energetic treatment that can be prescribed. The lock wont be forced by any violence, but it opens at once to the right key!

A very similar affection of the heart sometimes attends long-continued stomach disorder from slowness of digestion, and yields to the treatment appropriate to that condition. It is generally only felt after meals, during digestion.

The reflex irritation of the heart, caused by excessive and acid or acrid secretions in the stomach is generally relieved by the antacids, absorbents, and aromatics, used for the relief of the primary malady. The nit. argent. is particularly applicable to many such cases. Where the irritability of the heart is such that its action continues troublesome, after the acid contents of the stomach have either been neutralized by alkalies, or ejected by the pyrotic flow or by vomiting, nothing answers better than a little prussic acid, with tincture of hop in mucilage and camphor mixture, to which a few grains of bismuth may often be added with advantage.

But it is in chronic cases of nervous dyspepsia, and particularly where there is also anæmia, that the heart is most liable to be sympathetically affected. In most cases, the gastric irritation travels backwards to the true spinal cord, and is thence reflected along the cardiac nerves to the heart; but I have no doubt that, in other cases, the source of irritation is centric, seated within the spine itself; for we meet with instances where both the epigastric and the cardiac affection seem truly to depend on what is termed "spinal irritation;" where both are brought on or aggravated by pressure over certain of the dorsal spines, and where both yield readily to a few leeches or a sinapism, or a blister applied over the tender vertebræ, without any other treatment whatever. This I have seen over and over again; and therefore it is well, in all cases of the kind, to examine the spine; and if we do find a tender spot, a few leeches, or cupping, or a blister over it, will very much expedite the cure.

One patient will complain most of palpitations and irregular action of the heart; another of pain in the region of the heart; and another both of palpitation and pain. The heart is irritable, easily excited, and its action is quick and hurried, irregular and tumultuous, often with visible impulse, though this impulse is rather diminished than increased in force. It is generally worst after a meal, though at all times the organ continues so irritable, that a start, or any slight excitement, will bring on palpitation. When there is flatulence, it is always worse, and is then accompanied by a sense of oppression in the chest. Again, the pain may be seated at one small spot in the region of the heart, or more or less diffused over this region, or it may extend up towards the left shoulder, or even down along the inside of the left arm to the hand. It may be of any intensity—from oppressive dulness up to the most severe neuralgia. If the patient be anæmic, the breathlessness, &c., of this state will be superadded to an aggravated degree of the heart symptoms. It is of course necessary to have recourse to all the aids derivable from auscultation and percussion, in order to establish our diagnosis of the nature of the heart affection—whether it be functional and sympathetic, or structural and organic.

For this form of heart affection, the two principal remedies are iron and nitrate of silver; the former, where disturbed action of the heart is the main feature, the latter, where with disturbed action there is also pain. In the latter circumstances the nitrate of silver has an excellent effect: it may be given thus:

No. 33. ℞. Nit. arg. gr. iii., p. opii gr. iii., p. rhei. gr. xii., ext. humuli gr. xii.
M. Ft. pil. xii. One three times a day.

To this internal treatment a belladonna plaster over the heart will be found a powerful adjuvant. These means will very generally relieve the painful feelings of the heart, and also materially diminish the irritability and excited action of the organ; and then the cure may be carried forward to its completion, by iron, and the other remedies appropriate to the condition of the digestive organs. Where there is no pain, these latter means (including the iron) may be commenced at once; but even in these cases, two or three weeks' use of the nitrate of silver will do great good, as, in addition to its more specific virtues, it is an excellent tonic. Sometimes the ext. aconit. may be usefully substituted, in combination with it, *for* the extract of hop. Of course, in all cases, the bowels must be kept regular, *and the diet attended to*, bulky and flatulent articles of food being avoided. As

to wine and stimulants in general, the patient must be guided by the effects they are found to produce. As a rule—at all events, at first—they do harm; they are not needed, and had best be avoided. Excessive smoking and snuff-taking have a very deleterious effect in these cases of irritable heart, and indeed in dyspeptic disorders in general.

Various other organs are occasionally sympathetically affected in cases of dyspepsia; and dyspepsia is frequently itself but a portion of a more extensive disorder affecting various organs, or the whole system. Thus, we have various affections of the brain and organs of sense, various disorders of the urine, and sometimes, though more rarely, of the lungs, dependent upon indigestion; and *vice versâ*, the stomach is often secondarily affected by cerebral and renal diseases, or suffers in common with other parts, in general diseases of the circulating fluids, or of the system at large, such as scrofula and gout. Here, as elsewhere, in medicine, we must never forget that, as some one has well remarked, disease is something more than a "chain of many links," of which, if a single one be broken, the strain of the whole chain is destroyed; that is a "rope of many strands," so twisted and twined and interlaced, that to relieve its tension, the whole must be cut through. I cannot, however, enter upon the consideration of such extensive subjects as these, as they would lead me too far away from the immediate purpose of the present paper.

Flatulent Dyspepsia.—In almost all cases where there is irritation and diminished tone of the gastric mucous membrane, flatulence is a consequence to a greater or less extent; it is therefore a common symptom in the various forms of dyspepsia. But sometimes it is so great, as to constitute the most troublesome symptom, and the main feature of the complaint. In most cases the stomach relieves itself from time to time, by eructations or belchings, but in others, its muscular coat has so lost tone, that it is able to contract but very feebly, while at the same time there is spasmodic closure of the cardia and lower portion of the œsophagus, and then the epigastrium becomes swollen and absolutely tympanitic, the stomach is literally blown up with wind; in this distended state it presses upon, and obstructs the functions of the heart and lungs, and the patient suffers dreadfully, till at last an eruption of flatus takes place, and relief is procured.

Before prescribing specially for flatulence, as a symptom in any case of dyspepsia, we must ascertain whether or not there be any inflammatory action present. If there be, the proper remedies would be, swallowing small bits of ice, small doses of nit. potass. with carb. sodæ—in short, those recommended for inflammatory dyspepsia, particularly counter-irritation over the epigastric region. If the irritation be not of an inflammatory character, if other dyspeptic symptoms are absent, or slight, and if the stomach be able to relieve itself by eructations, we shall effect much good by the following mildly aperient and carminative powder:—

No. 34. ℞. Pulv. Gregorii, p. aromat. āā ʒss. M. Half a teaspoonful twice or thrice a day, stirred in a little hot water.

But in order to give permanent relief, we must regulate the bowels, and strengthen the digestive organs, by tonics, combining them with carminatives. I find the following answer very well;—

No. 35. ℞. Asafœtidæ gr. xxxvi., p. rhei gr. xii., ol. cajeput. gtt. xii. M. ft. pil. xii.

No. 36. ℞. Infus. chirettæ ʒxi., tinct. zingib. ʒi., t. hyosc. ʒii. M. Two of the pills to be taken every night at bedtime, and two tablespoonfuls of the mixture morning and mid-day.

Where the air collects in such quantities as to distress the patient by the tympanitic distension, caused by its accumulation and retention in the stomach, I know no better means of relief than applying a hot flannel sprinkled with turpentine over the epigastrium, and giving, at the same time, half a teaspoonful of powdered ginger in about 4 ounces of water, as hot as can be swallowed. This very rarely fails to give speedy ease by abundant eructations of wind. The seldomer indeed it is had recourse to the better; but in urgent cases it must be done; and the necessity for its frequent repetition will be much diminished by putting the patient, in the intervals, upon some such treatment as that just recommended (℞s. No. 35, 36), and *at the same* time giving an occasional dose of oil.

terebinth. with ol. ricini— ʒ ss. of each—an hour before getting up in the morning so as to act freely on the bowels.

Too long fasting, gulping down food in a hurry without chewing it properly, and eating immediately after exercise or fatigue (whether bodily or mental), are points specially to be shunned by flatulent patients. The effect of the various articles of diet must be also strictly watched, so that they may "choose the good and avoid the evil;" and in general it is well to allow them a little brandy and water, or good sound sherry and water, in the midst of, or immediately after, the principal meal of the day.—*Edinburgh Med. Journal, Sept. and Oct.*, 1855, *pp.* 216 *and* 319.

30.—ON THE FORM OF DYSPEPSIA WHICH OFTEN PRECEDES AND ATTENDS PHTHISIS.

By JONATHAN HUTCHINSON, Esq., Surgeon to the Metropolitan Free Hospital.

[Dr. Wilson Philip was the first to point out the connection of dyspepsia with phthisis. Many other authors have since noticed it, but especially Dr. T. J. Todd, who with great ability refers it to certain disordered abdominal functions.]

Dr. Todd, in his description of "strumous dyspepsia," (see his article on Indigestion in the 'Cyclopedia of Practical Medicine') although treating of the diseases usually classed as struma, and occurring in children, rather than of phthisis, has some observations which may, without much risk of error, be transferred to the latter disease. Indeed, he includes, under the term struma, an idea of its being of tuberculous nature, and there are probably no good reasons for supposing that the constitutional symptoms would differ materially in the case of tubercle in the lungs, from what they would be in tubercle of the lymphatic glands.

After a detailed enumeration of symptoms, he sums up as follows:—"The phenomena of this disease, its whole complexion and character, sufficiently indicate a congestive state of the hepatic system. Were we allowed to assume, as the proximate cause of the disease, derangement of the function of the liver, all the other consequences would follow; for, though we may not know precisely what share the function of the liver may have in the process of sanguification, we may easily understand how it may interrupt and interfere with this process, leading to a cachectic state of the fluids, from which result tubercles, and other semi-vital and semi-organic productions."

Dr. Hughes Bennett, one of the last writers on the subject, has, in his work on Pulmonary Tuberculosis, the following statements:—"From facts of a certain kind it has been supposed that hereditary predisposition, a vitiated atmosphere, changeable temperature, certain occupations, humidity, particular localities, absence of light, and so on, predispose to phthisis. Very frequently several of these are found united, so that it is difficult to ascertain the influence of each. When they so operate, however, they invariably produce in the first place more or less disorder of the nutritive functions, and are associated with dyspepsia or other signs of malassimilation of food." In another part he says, "The peculiarity of phthisis, however, is that an excess of acidity exists in the alimentary canal, whereby the albuminous constituents of the food are rendered easily soluble, whilst the alkaline secretions of the saliva and of the pancreatic juice are more than neutralized and rendered incapable either of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system as will render them easily assimilable." He believes that the absorption of fat is effected by a mechanical process of emulsification, each molecule of oil being surrounded by a pellicle of albumen, and in that condition readily entering the intestinal villi. In phthisis he believes that very little fat is taken up on account of the removal of the albumen dissolved in the excess of acid. No mention is made of disorders of the functions of the liver or pancreas. Now there are several serious objections to this theory. First, granting that there is excess of acidity, how is that excess produced? Is it not in itself indicative of functional disorder *of some* of the secerning viscera? And, on the other hand, I find no clinical

evidence that such acidity is always present. I freely admit that it is a frequent symptom, but not by any means an essential one, in the dyspepsia of phthisis. The evidence adduced by Dr. Bennett himself on this point is loose and vague. Again, if the faulty assimilation of fat be merely mechanical, and caused by the presence of an acid fluid in the duodenum, a neutralizing dose of alkali before or with the meal should strike at what Dr. Bennett deems the very essence of phthisis. But we know that alkalies possess no such power. Whilst, therefore, I accept as valuable Dr. Bennett's opinion as to the frequency of the dyspeptic stage in phthisis, I cannot agree with his pathological views as to the nature of that dyspepsia.

Mr. Ancell, whose recent and voluminous Essay on Tuberculosis manifests great research, accepts to the full Dr. Todd's views as to strumous dyspepsia. He does not, however, develope them, or add much to their precision.

Here it may be well to state clearly, that the argument held is not that all indigestion leads to phthisis, but that there is a peculiar form of it which has a natural tendency to end in that disease. The symptoms denoting that form have already been stated, but the question yet remains to be answered, Are they not also common to many other conditions distinct from the tuberculous? The comparative neglect with which the various forms of dyspepsia have unfortunately been treated, renders it impossible to answer this question definitely. We have no accurate observations as to the especial symptoms most frequent in the dyspepsia which attends scurvy, that of chlorosis, that of gout, that frequent in cancer, &c. My own inquiries have been far too limited to permit of the production of anything like statistical evidence on these points. From some facts, however, it seems highly probable that the form described is *not* common to other conditions of the system. The subjects of emphysema of the lungs, who almost always suffer severely from indigestion, are generally very fond of fat; and their inconveniences more usually concern flatulence, water-brash, &c., than heartburn, or any of the states dependent on undue acidity. The gouty alderman suffers from his own form of indigestion, but it is not the one above described; and he remains to the last a lover of turtle fat and of alcohol. The chlorotic patient has peculiar dislikes, but not either in her case is there, as far as I have been able to observe, any distaste for fatty aliment in particular, nor unless as a complication tuberculosis be imminent, any marked development of acid dyspepsia. The observation respecting the general fondness for fat in the subjects of emphysema, is one in the correctness of which I have much confidence, and which assumes great importance when it is remembered that the disease is one, to some extent, antagonistic to phthisis, and that the condition of the blood, as to oxygenation, is opposite in the two.

With regard to the difficult assimilation of fatty matters, I am inclined to believe that this symptom may be made great use of for purposes of prognosis. Exceptions undoubtedly occur; but as a general rule, it might probably be safely laid down that the severity of the tubercular dyscrasia is measured by the difficulty with which cod-liver oil is borne. The need for that remedy is mostly in exactly inverse ratio to the facility with which it is digested. In the worst and most hopeless cases of phthisis, the patient's countenance will contort itself into an expression of greater disgust than words could convey at the very mention of fat, or oil; and butter, sugar, &c., and even alcohol, are often included among the articles for which there is an intense disrelish. On the contrary, if a patient have once got to really like the oil, to be able, as he would say, to "drink it," and more especially if at the same time he have acquired a liking for other varieties of fat, there is every hope that the tubercular constitution is in abeyance, and that, provided the local lesions have not too far advanced, a recovery may ensue. The constancy with which this change in taste is observed in cases of recovering phthisis is very remarkable; and the observation will, I have no doubt, be confirmed by any one who will make inquiries on the subject.

With regard to the opinion which has been expressed respecting the proneness of those who have an habitual disrelish for fat to become, sooner or later, the subjects of tuberculous disorder, a little explanation may be needed. It is not intended to imply that such is always the case. Undoubtedly a considerable number of such go through life in the enjoyment of good health. I believe, however, that it would generally be found, on inquiry, that these exceptions are more apparent than real;

and that if there is an instinctive dislike for adipose matter, there is, to compensate it, a fondness for some other hydro-carbon, such as butter, sugar, or alcohol. As to the frequency with which, amongst a family of others, a child of scrofulous constitution is marked by his peculiar dislike to fat, I feel well convinced; and am not less strongly so, that, comparatively speaking, such a child is more prone than others to become the subject of pulmonary phthisis. The most ominous form of all, however, in which this symptom can show itself, is when a person previously fond of fat rather quickly loses relish for it. Such an occurrence should be regarded with the most serious suspicion, more especially if attended by any of the other symptoms of acid dyspepsia. The tubercular dyscrasia is not far off when these are developed.

Passing now to speak of the treatment of the dyspepsia of phthisis, it can scarcely be necessary to say that it must not be assumed, from what has been laid down as to its essential characteristics being the non-assimilation of hydro-carbonaceous matters, that the forcible administration of such is the measure indicated. It would be perfectly useless to order the subject of confirmed dyspepsia of this kind to take fat. In the first place, his palate would refuse it; and, secondly, if swallowed, his stomach, pancreas, and liver are quite incompetent to its digestion. It is not, however, by any means so with cod-liver oil. Whether it be that the biliary principles it contains furnish the necessary material for the assimilation of the oily ones, or whether these biliary principles, or the minute proportion of iodine, bromine, &c. present, exert a beneficial influence on the viscera at fault, and excite their latent functions, cannot be positively answered, but the fact is nevertheless certain that the fish oils can be endured by the subjects of most aggravated dyspepsia, and will relieve symptoms which all *à priori* reasoning would have expected them to aggravate. I have seen the liability to frequent sick headaches and to attacks of acidity disappear under the exhibition of cod-liver oil, and I have seen, over and over again, the same remedy agree well in cases in which a red abraded tongue, with prominent papillæ, &c., had seemed to forbid its use. As the result of extended and careful observation on this point, I am obliged to confess that I know of no single symptom which would have any weight whatever in inducing me to defer the trial of this oil in a case of phthisis. This opinion is probably at variance with that of many of more experience than myself, but I yet cannot help entertaining it. That in a great many cases an introductory treatment is required cannot be doubted, but to recognize such cases before trying the oil is a matter, as far as my knowledge extends, of impossibility. In all cases of phthisis I should, therefore, begin with the oil, and if it would agree, persevere with it, and gradually pass to the use of other fats in addition. If, however, the oil cannot be taken, there will then be called for on the part of the physician the greatest exercise of skill and prudence in the treatment of the dyspepsia by other remedies. A stomachic mixture, which is much employed by Dr. Peacock, at the Hospital for Chest Diseases, and which consists of a cold infusion of rhubarb, calumba, and ginger, with the addition of an alkali, will often serve an admirable purpose. There are certainly cases, however, if I am not mistaken, in which no remedy will so certainly achieve the end in view as mercury in small and repeated doses. Its administration requires the greatest caution on the part of the prescriber, but if that be duly exercised the resulting benefit will often be surprisingly great. And here it may be permitted to digress a little in order to ask attention to the circumstance, that all who have investigated the dyspepsia of tuberculosis have arrived at nearly the same conclusions as to its treatment, and that the conclusions of all are in active support of the theory of impaired hepatico-pancreatic functions. Mr. Abernethy's treatment is too well known to need allusion; the same, also, might be said of Dr. Wilson Philip's;—both used mercury freely. The latter, indeed, records an extraordinary case, in which there was every reason to believe the mesenteric glands far advanced in tubercular disorganization, and in which restoration to perfect health ensued under a course of mercury, extended without intermission over more than a year. Among the advocates of mercury in phthisis we have four of the ablest practical physicians that have ever adorned our profession, Dr. Marsh, Dr. Graves, Dr. Stokes, and Dr. Munk. It is true, that between the practice of these and of Dr. Wilson Philip there was the important *difference, that the one* gave a short course of full doses, and the other a prolonged

one of very small doses; but notwithstanding this, both may be quoted as pointing to the same pathology of the disease. Dr. Todd, whose excellent article has already been alluded to, advocates a nearly similar plan. Those, also, who do not employ mercury, generally use nitro-muriatic acid, the vegetable alteratives, the alkalies, &c., the effect of which upon the functions of the viscera referred to is to some extent the same in nature.

As soon as, by treatment, the relish for the hydrocarbons has been restored, they should at once be supplied. Pork chops, bacon, butter, cream, sugar, dried fruits, and alcohol in its various combinations should be recommended. The comparative immunity enjoyed by the intemperate from tuberculous disorders has long been matter of remark, and has recently been made the subject of some interesting, though not very conclusive, statistical calculations, by Dr. Atkinson, of Wakefield. A case came under my notice two years ago, in which the patient, who had suffered all the symptoms of confirmed phthisis, and had been told by an experienced stethoscopist that such was the case, regained his health, as he believed, solely from the immoderate use of beer. He had engaged himself as pot-boy, and had, in that situation, drunk almost *ad libitum*. I made a careful examination of his chest, and had every reason to believe that the case was one in which large vomicæ were in process of cure. It should be stated that the improvement had begun under the use of cod-liver oil prescribed by Dr. Cotton, at the Brompton Hospital, but it had continued and even progressed more rapidly since it was left off.—*Med. Times and Gazette, May* 5, 1855, *p.* 434.

31.—ON TUBERCULAR PERITONITIS IN ADULTS.

By Dr. Augustus Kyburz, of Zurich.

[This is a discourse which has been hitherto little regarded, and though not unfrequent, its special pathology is not well understood.]

From the consideration of the diagnostic signs of these cases, we see how uncommonly difficult it is to recognize this form of disease at its commencement. The disease begins, according to the author's observations, generally with a chill, which is then sooner or later followed by the abdominal symptoms. When the disease is in its early stage, and the deposition of tubercle consists in scattered granulations upon different parts of the peritoneum, and the latter occupies the superior region of the abdomen, the belly is puffed up and of a roundish form. If the tuberculosis is propagated from one point (in four cases it was the ileo-cœcal region), the abdomen becomes irregularly distended, and has a doughy and resistent feel. If particular parts are especially involved, various intumescences can be felt, which may readily be confounded with lesions of the spleen, liver, and uterus. In connection with this deposition and progressive development of the disease upon the peritoneum, the most various and opposite symptoms are called forth, to wit, tension of the abdominal walls, prominence of the liver and spleen, so also of the heart, compression of the lungs and dyspnœa; the organs also become pressed downward into the cavities in which they most readily subside; thus the author found in one case the vaginal portion of the uterus crowded down even to the labia. Through the pressure of tubercular degenerated lymphatic glands upon the excretory ducts of the liver, or through pressure of the peritoneal sheets one against the other, since they include the gall-ducts between them, arises the icteric appearance and the accompanying coloration of the stools. Disturbance of the urinary secretion from pressure, is not a rare phenomenon. In one case ischias originated from pressure upon the nerves. Pressure upon the vessels naturally produces disturbance of the circulation, thence œdema of the feet. If the vena cava becomes compressed, the veins appear swollen upon the distended abdominal walls. In one case coagula had been formed in the veins. The phenomena of vomiting, diarrhœa, or constipation, and loss of appetite, are results of the disturbed action of the organs, partly from pressure, partly from morbid degeneration of the intestinal walls.

In reference to the general symptoms, we can, according to the author, determine the following rules. *There is usually* a slight febrile condition existing, the

pulse even in the morning being over 90 per minute, very often accompanied with colliquative sweats. We observe in the patient a progressive emaciation and loss of strength, as well as an alteration of the colour of the face, but rather paleness with circumscribed redness of the cheeks, than the straw-yellow colour peculiar to carcinomatous affections.

The shortest duration of the disease was four weeks, the longest six to seven months. The issue in five cases was fatal; only a single patient left the hospital in a satisfactory condition, and the author doubts whether he was really cured. Death followed from gradual wasting, or from the occurrence of various complications. Ulcerations of the intestines were observed only in one case, perforation in none.

The treatment was the same as in every other form of tuberculosis, the administration of cod-liver oil a long time continued.—*Schmidt's Jahr.—American Med. Monthly, May* 1855, *p.* 846.

32.—*Function of the Sigmoid Flexure.*—O. Kohlrausch ('Zur Anatomie in Physiologie der Beckenorgane,' &c. Leipsig, 1854) regards the sigmoid flexure in man as serving the purpose of relieving the sphincter ani from pressure.—*Association Journal.—Dublin Hospital Gazette, Oct.* 15, 1854, *p.* 285.

33.—*Spasmodic Stricture of the Bowels.* By Dr. J. W. F. Blundell.—I would beg to suggest to members of the profession the trial of a simple plan of treatment in the above disorders, which I have found most successful in several instances. It is nothing more than a vibratory or stimulating application to the sphincter ani, with a blunt wooden instrument. It will be found to relieve the severe "bearing down," and other pains endured by patients when the bowels have been long confined, and in cases where there appears to be stricture either of the rectum, or lower portion of the sigmoid flexure of the colon. The operator should begin gently at first, increasing the strength as the pain subsides, and must place the point of the wooden instrument (a common ruler would do) on the front margin of the sphincter, just at its juncture with the perineum.

I need not attempt to offer an explanation of how it acts on the parts or system, as the fact remains. I know it does act more powerfully than almost any other means, while it is so perfectly harmless, that the patient, before unable to rest in one position, and labouring under unremitting distress, is relieved in a few minutes, and enabled to procure sleep until the medicines previously given begin to act.

I can only add, that I hope so small a thing as this may not prove too simple to claim scientific attention.—*Med. Times and Gazette, June* 23, 1855, *p.* 634.

34.—*Chloroform in Colic.* By M. Aran.—M. Aran states that repeated experience convinces him of the great value of chloroform given internally, as a curative agent in colic, employing it also externally until the acuteness of the pain is somewhat subdued. No absolute dose can be laid down; for, while cases of medium intensity may require but 60 drops per diem, severe ones may require from 100 to 300 drops. A portion is given in water, suspended by mucilage, and about a third of the quantity in one or two lavements. The entire quantity should be given in divided doses, as the effects are soon dissipated. From the second, or more rarely the fourth or fifth day, the colic is relieved, but a less quantity of the chloroform must be continued until stools are re-established, which will usually be the case spontaneously when food is given. In twenty-one cases only three required the use of purgatives. Still, in severe cases, the duration of treatment is abridged, and relapse rendered less probable, if the first success of the chloroform be followed by a dose of castor oil or seidlitz water. In chronic colic, occurring in persons who have often had the disease, and where obstinate constipation is

accompanied by moderate pain, chloroform is of no avail, active purging alone succeeding.—*L'Union Médicale.—Med. Times and Gazette, June* 23, 1855, *p.* 638.

35.—*Tormentilla as an Astringent.*—The decoction of tormentilla, a remedy in not very general use, is, we observe, a great favourite with Mr. Hilton, of Guy's Hospital. It is employed in cases of piles, passive hemorrhages, diarrhœa, &c., as a tonic and astringent. A few weeks ago, Mr. Hilton ordered it (in doses of an ounce and a half every three hours) to a patient in whom hemorrhage from the bowel had occurred four days after an operation for hernia, and took the opportunity of observing to his class, that it was one of the most efficient vegetable astringents that he knew.—*Med. Times and Gazette, July* 7, 1855, *p.* 8.

36.—*On Cirrhosis.* By Dr. C. Handfield Jones, F.R.S.—As far as my experience goes, hematemesis generally is one of the earlier secondary results of cirrhosis, ascites replacing it, if it has existed, at a later period. In my work on Morbid Conditions of the Stomach, page 59, a case is mentioned in which death occurred from vomiting of blood, without any history of previous illness extending further back than a week. The treatment of cirrhosis, and of course of its secondary effects, is, at the present day, a sad opprobrium to medicine. The bar which is set to the free course of blood through the portal vein, impedes, to a great degree, the absorption of any medicines given by the mouth. Diuretics produce no effect, because they never get into the blood, and so never reach the kidneys. Dr. Christison's recommendation of applying fomentations of digitalis infusion to the abdomen, and thus directly arriving at the general circulation, is certainly a promising one; but in one case in which I tried it, it produced no good effect. I cannot but think that the employment of baths of Kreuznach water, now known to be often efficacious in causing the disappearance of fibroid tumours of the uterus, might be tried in cases of cirrhosis, with some reasonable hope of benefit. These might be conjoined with frictions of cod-liver oil over the general surface. Surely it would be better to try perseveringly some plan of this kind, rather than the routine treatment of diuretics and purgatives, whose result in most cases is so unsatisfactory, and which at the most aims merely at the removal of a symptom.—*Med. Times and Gazette, Aug.* 25, 1855, *p.* 184.

37.—*Oily Frictions in Mesenteric Disease.* By Dr. Baur.—In this paper, Dr. Baur reports the great success that has attended the friction of the whole surface of the body, night and morning, with a sponge imbibed with tepid oil, the patient being kept in bed, wrapped in a blanket, for two hours after. The first effect produced is abundant general sweating; the skin, losing its dry aspect, becomes supple, turgescent, and of a fresh colour, a rubeloid eruption sometimes occurring. A secondary and highly beneficial calming effect is produced, which is manifested in the production of tranquil sleep. As a third, there is increased secretion, especially of the kidneys and liver. It is evident that many affections may be rendered tractable by such an agent, and Dr. Baur regards it as almost possessed of specific properties in the diseases of scrofulous origin, as tabes mesenterica, or glandular tumours. He believes the frictions are powerful adjuvants in scrofulous hydrocephalus, and may even prove curative in phthisis, when steadily persevered in.—*Med. Times and Gaz., Sept.* 8, 1855, *p.* 245.

38.—*Of the Employment of Borax in Injections in the Diarrhœa of Children.* By M. Bouchut.—It is well known how difficult it sometimes is to check certain forms of diarrhœa in young children, during the period of their first dentition. Two kinds of diarrhœa are met with amongst children at this age, the one symptomatic of organic disease of the intestinal mucous membrane, the other an idiopathic affection, catarrhal in its nature, sometimes proving fatal, yet leaving behind no appreciable lesion. In this last complaint it is that the lavements of

borax recommended by M. Bouchut are so successful. The beneficial action of this remedy on the mucous membrane of the large intestine is regarded by M. Bouchut as analogous to the good effects of borax on the mucous membrane of the mouth, especially in apthous affections. Borax has this advantage over other salts generally used in injections, in such cases it does not decompose in the syringe, it is not irritating, and it is alkaline. The following is the formula for this alkaline *lavement*:—

Borax, 3iv. to 3vi.
Sugar and water, ℥iv.

If a larger quantity of borax be administered, it is necessary to increase the quantity of fluid, since the borax is not very soluble. M. Bouchut has used this salt in other intestinal maladies, as ulceration, but his cases are not sufficiently numerous to be conclusive.—*Dublin Hospital Gazette*, *Feb.* 1, 1855, *p.* 12.

URINARY ORGANS.

39.—ON THE CURATIVE TREATMENT OF CHRONIC MORBUS BRIGHTII.

By Dr. Handfield Jones, F.R.S.

[This is a paper which was read before the Harveian Society. The author first notices the disadvantages the physician has to contend with in tedious cases of this kind, which are not present in an attack which immediately threatens life. The patient may not be aware of the danger, will scarcely believe the prophetical warnings of his physician, and, in consequence, may not be so persevering in the use of remedies as is necessary. The highest medical qualities are required in these cases, the clear intellectual ken to fix on the true cause, the decided judgment to adhere to a proposed plan, and the confidence amid all discouragements to keep the desired result in view. Dr. Jones then says,]

It is quite unnecessary that I should enter into any detail respecting the structure of the healthy kidney. I would only refer to these points:—1. That the Malpig. tuft of capillaries lies bare and unsupported in its capsule communicating with the tubes. 2. That the tubes of the cortical structure have a distinct central canal, with a lining of glandular epithelium resting on homogeneous membrane. 3. That this glandular epithelium is an albuminoid substance, and has never been shown to contain any of the constituents of the urine, though it is doubtless intimately concerned in the secretory process. 4. That urea and uric acid are proved to be formed in the blood and eliminated by the kidney. 5. That the epithelium constitutes the main mass of the kidney.

With regard to the pathology of Bright's disease, I am anxious to say at once that I exclude totally and entirely from this appellation all instances in which acute congestion or active hyperæmia befals a healthy kidney. I do not consider the state of the kidney in dropsy following scarlatina, or in that resulting from arrested perspiration, as having any essential connexion with that which exists in true M. Brightii. I believe the two conditions to be as distinct from each other as pneumonia and phthisis. I trust, therefore, that no one will suppose that I use albuminuria and Bright's disease as convertible terms. Albuminous urine is a sign of Bright's disease, but no pathognomonic one, nor absolutely a constant accompaniment. It will be quite sufficient for my present purpose if I take for our consideration the two principal varieties of morbid change that are met with in M. Brightii. The one is the large, pale, often mottled kidney, not usually presenting much appearance of granulation. The other is the small, contracted, wasted, granular organ, lobulated often like that of a fœtus. Enlargement sometimes to double or treble the natural size is the characteristic of one, atrophy and diminution of the other. What we gather from naked-eye inspection the microscope confirms, and converts into more precise information. If we examine a specimen of the large kidney, we find the epithelium in many parts accumulated in considerable quantity, both distending the tube, and more or less obstructing its canal. The individual particles may be larger and more completely formed

than usual, or they may be stunted and ill developed. Not unfrequently a large quantity of oil is mingled with the granular matter, and this may be present in the cells to such an extent as to give them completely the appearance of glomeruli, or compound inflammation-globules, as they were originally, but wrongly, denominated. The existence of much oily matter in the diseased tissue, gives it a more or less decided milky appearance, which contrasting with pale spots where there is less oily matter, or red where some blood congestion has taken place, produces the mottled condition. Fibrinous casts, themselves often undergoing fatty change, in most instances are present in some of the tubes, increasing the obstruction and distension. The Malpighian tufts may not appear notably altered, or may be obscured by some effused and coagulated fibrine, or may be compressed into a small mass at the bottom of their capsules by the refluent fluid from the obstructed tubes. Sometimes more destructive changes take place, and the tubes are found more or less broken up, and converted into a detritus of oily and granular matter. The urine secreted by kidneys to which the foregoing description applies, is generally rather pale, somewhat turbid, highly albuminous, of low specific gravity, and deposits a sediment, often pretty copious, consisting of casts of the tubes, renal and vesical epithelium, with occasionally blood-globules. It contains far less of the solid constituents of the secretion than the normal fluid.

In the atrophied kidney, the wasting and destruction of the tubes is usually more considerable than in the enlarged. In extreme cases very little trace of them may be discernible, but in less advanced, *i. e.*, one may say in the majority, the tubes are found obstructed by unhealthy, more or less fatty, epithelial contents, together with casts, and yellow pigmentary molecules, the traces of hemorrhagic extravasation. The Malpighian tufts, in consequence of the general collapse, appear closer together; a varying number of them remain healthy, others are compressed and shrunken. Cysts may exist in vast numbers in diseased kidneys, usually, I think, in those that are wasted and granular, but they do not belong essentially to the disease. They seem to be produced partly from the tubes themselves, by obstruction of their canal, and subsequent dilatation, partly (and this especially applies to the case of a multitudinous growth of microscopic cystlets) by the formation of new vesicles. Their contents are never identical with the proper renal product, but consist of various cell-formations, and colloid, albuminous matter. The urine secreted by atrophied kidneys is usually more abundant, paler, less albuminous, of lower specific gravity, and deposits a less quantity of epithelial sediment than that from enlarged kidneys. It usually contains fibrinous casts, and sometimes, if any amount of congestion has been set up, blood-globules also.

Two conclusions, of the utmost importance to us in practice, seem to me fairly derivable from the knowledge we have gained respecting Bright's disease. The first is, that the morbid condition, whether attended with hypertrophy or atrophy, is of the nature essentially of depraved unhealthy nutrition, not in any wise the result of ordinary inflammation attacking a previously healthy structure. In the atrophied kidney, I see a change just such as befals any part that, from defect of its own vital energy, gradually decays. I have found recently just the same occurring in the pancreas. The enlarged kidney is, I am sure, frequently associated with scrofulous disease in other parts. I have seen it co-existing with tubercles and vomicæ in the lungs, and deposit of bacony matter in the spleen, of a patient who died with tertiary syphilis. The enlargement of the kidney seems to take place much in the same way as the enlargement of a gland (lymphatic), which becomes the seat of scrofulous deposit. In both cases, unhealthy plasma is organized into low celloid forms, and in much the same relation to adjacent structures. The conclusion above stated is strongly supported by the latent, insidious manner in which Bright's disease usually comes on, by the efficient causes, and by the juvantia. To the former, as essentially of debilitating character, I have only space just to allude. When hyperæmia or inflammation actually makes its appearance, other symptoms are observed (especially in the urine) than those which occur in the degenerative state alone.

The other conclusion is, that in a great majority of cases, in which the symptoms announce degeneration of the kidney, it may reasonably be anticipated that a considerable part of the *organ remains in a state* which is capable of restoration more

or less complete. As long as the tubes are undestroyed, we may have hopes of being able to reproduce a healthy condition of their epithelial lining; if they have perished, the attempt must be ineffectual, but at any rate can scarcely be in any case injurious. We shall, therefore, do wisely to act on the most favourable supposition, and employ all our efforts to prevent the degeneration advancing further, to repair as far as possible the damage that has been effected. The question is, how shall this be done? and to this, of course, experience alone can give a satisfactory answer. The chief purpose of my communication is to lay before the Society such indications as I have obtained of the course to be pursued, and of the means found useful in pursuing it. Strongly convinced as I am that Bright's disease is not inflammatory, in any correct use of the word, but is purely a disease of depraved nutrition, I can entertain no doubt that the right method of treating it is to endeavour to improve the general vigour and power of the system, and therewith its nutrition, in every possible way. We must not be satisfied with the removal of the dropsy, and restoration to apparent safety; but we must go on in the task of corroborating the system, till the urine has recovered its healthy condition, and the blood again imparts a ruddy hue to the complexion, and the muscles are toned to strength and vigour. I do not say that we shall always, or often, be able to do all this completely, but this is what we should perseveringly aim at; and I think we have good ground for believing that such persevering effort may make all the difference to many of our patients, between an early death and many years of tolerable comfort and enjoyment. I have seen a patient this very day who has M. Brightii in a marked form, with its perilous complications of dropsy, bronchitis, and threatening cerebral symptoms. His history is, that he had small-pox at an early age, and has never been well since. How different might his condition now have been, had the renal degeneration, which no doubt dated from the debility induced by the small-pox, been observed and combated many years ago.

Case 1.—George B., aged 26, married, a smith; admitted Sept. 1. He had ulcerated sore-throat fourteen days ago. Has had two attacks previously, exactly of the same kind, and has not been exposed to the contagion of scarlatina, nor has he since then observed any desquamation of the skin. He has dropsy of the legs, and pain in the lower limbs; his food digests badly; tongue whitish; skin cool; pulse quick; is rather spare, and of sallow aspect; urine is acid, of good amber colour, deposits a mucous cloud, consisting of pale, often corpuscular casts, not of large size, with blood globules and mucous corpuscles, or abortive nuclei, and some larger epithelial particles; it is markedly albuminous.

Acid. nitrici ℥ iij., tinct. cinchon. 3j., infus. gent. co. ℥j. Ter die. Tr. ferri muriatis ℥ x., aquæ 3j. Ter die c. cibo.

12th.—Feels a great deal better indeed, swelling of legs all gone, feels almost as well as ever he did. 19th.—Feels a great deal stronger and better. 29th.—Feels quite well. Pt. in tr. ferri mur. Oct. 17th.—No return of dropsy, feels as well as ever he was, is able to do work as well as ever he could. Rather anæmic. Urine clear, bright, rather pale colour; not albuminous. Oct. 27th.—Urine clear, of deep amber colour, sp. gr. 1027; contains a trace of vesical and possibly of renal epithelium; no albumen; one doubtful cast. June 5th.—Is now recovering from another attack of sore-throat; urine clear, of healthy aspect, not albuminous. No evacuant treatment was employed in this case; the dropsy disappeared under the tonics. The urine became quite healthy, and remained so. It is probable that degeneration was not far advanced. There was nothing to indicate that the case was one of mere renal congestion.

Case 2.—Thomas Poston, aged 27, waiter, admitted Sept. 29th.—Is short and stout. He stated that he had had rheumatism, and fourteen days ago sore-throat. His illness seems to have come on gradually, but my notes do not speak positively on this point. He complained of a kind of pain at the lower sternal region, with some dry cough. The tongue was clean. His food digested well. The heart's sounds were brief and clear, the impulse rather weak. His bowels were regular. He was anæmic, his feet swelled at night, he felt weak in himself; he acknowledged that he was in the habit of drinking to excess. The urine was rather cloudy, most highly albuminous, deposited whitish flocculi, consisting of small casts, granular, pigmentary, and corpuscular, together with multitudes of small *(probably renal) epithelial* particles and blood globules, mingled with many uric

acid crystals. The sp. gr. was 1015. I put him on tr. ferri muriatis ℥ vij., acidi muriat. ℥ ij., inf. quassiæ ʒi., ter die, with a large plaster to the loins. Oct. 18th.—He reported that he was a good deal better, he had very little swelling of the feet at night, his eyelids were not swollen in the morning. Tongue clean. Urine was not quite clear, strongly acid, deposited flocculi, consisting of granular casts, ill-defined corpuscles, and granulous matter, with torulæ; sp. gr. 1010; it was decidedly but slightly albuminous. Oct. 24th.—He reports there is nothing now the matter, has no dropsy, is getting quite strong. Nov. 7th.—He had no return of dropsy, felt quite well. The urine contained a mere trace of albumen, was of good though rather pale colour, deposited a slight sediment consisting of a little urates, with short fragments of granular casts, some very long homogeneous ones, and a few corpuscles, sp. gr. 1016. He continued under treatment till Dec. 29th, when he remained perfectly well. On Dec. 12th the urine gave no deposit with heat or nitric acid, was almost quite clear, without sediment; it contained some cells looking like altered scaly epithelium, no unequivocal casts. This case was very much like the preceding, and occurred about the same time. I regard it as a case of degeneration of the kidney in an early stage, which was arrested by appropriate treatment. It was very interesting to observe how gradually the urine recovered its healthy condition. The dropsy was the first symptom to disappear.—*Med. Times and Gazette, May* 19, 1855, *p.* 488.

40.—ON THE IODIDE OF POTASSIUM IN DROPSY, WITH BRIGHT'S DISEASE OF THE KIDNEY.

By Dr. Corrigan, Physician in Ordinary to the Queen in Ireland.

I believe that in many cases the exhibition of iodide of potassium will remove, steadily and certainly, the dropsy that accompanies albuminuria, and will very much improve the quality of the urine, so that it will be found, in the treatment of cases of Bright's diseases, one of our most valuable medicines. What may be the extent of its action upon the structural change going on in the kidney, I would not at present venture to pronounce a positive opinion; but judging from its effect upon the urine, and from analogy as to its power in arresting, and even removing, interstitial depositions in other organs, I think it would not be rash to infer that it has the power, not only of arresting, but to a great extent removing, the peculiar interstitial deposition that is found in the kidney in some forms of Bright's kidney. I have already brought forward cases in support of a view that I have long advocated, that there are two essentially distinct diseases of the kidney, designated as Bright's disease, and described as only differing in being two stages of the one disease—the first stage being described as enlargement, the second as contraction. That the kidney, like the liver, may at first enlarge, or be hypertrophied, and that it may afterwards contract, I would not venture to deny; but this is quite different from its being laid down, as it generally is, that the contraction is in every case the second stage of the enlargement, and that to this contraction the first stage, or that of enlargement, must progress. It is to this I would object, and not to occupy too much time in pathology, in a lecture devoted principally to treatment, I would at once say, that I believe the two diseased states of the kidney, of which there are illustrations before us, have no necessary connexion with one another.

The first is a kidney much enlarged in size, pale yellow in its substance and on its surface, smooth and brittle in its texture, and with its capsule loosely attached and readily peeling off, attaining its size and deriving its appearance from the interstitial deposition, as far as we know, of a mixture of fat and morbid fibrine.

The second is that form of pathological alteration that I would designate as cirrhosis, in which the organ, from the contracted action set up in its cellular matrix, goes on diminishing in size until at last its vascular and secretory tubes are contracted so as to be completely choked up. It is not probable that in the latter form of disease we can effect much by treatment; but reasoning from analogy, there seems no *good reason that* we should not be able in cases of the

former to remove again and again the consequent dropsy, and even to arrest and also to effect the absorption of the interstitial deposition which constitutes the morbid change in the kidney. I have said from analogy, for we know that in instances of the corresponding interstitial deposition of pale yellow fibrine and oil in the liver, constituting this large yellow liver, it is possible not only to remove repeatedly the consequent dropsy, but even to reduce the liver to its healthy size, where the enlargement had been very considerable. The dropsy, in most cases of enlarged liver, is not so much dependent upon any mechanical obstruction, as upon extended irritation, just as we see effusion into the tunica vaginalis the result of low testitis; hence it is, that we are able to remove so effectually the dropsy attendant on the large yellow liver, and that this is the nature of the dropsy accompanying this state of the liver, is further proved by the fact, that the enlarged yellow liver will continue for many years without any diminution of its size; but nevertheless, without any return of the dropsy. It was a consideration of this analogy of the large yellow kidney being, like a similar change in the liver, a peculiar pathological state, and not merely the first of the stage of the one disease, and of the dropsy not being dependent, as in cirrhosis of the liver and kidney, upon gradually accumulating contraction, that led me to employ iodide of potassium in its treatment. We all know the very active power of this agent in acting upon the function of secretion in removing the interstitial depositions in periostitis and effusion into joints, and I was led to hope it might, from those qualities, be found useful in one form of Bright's disease. In the first case in which I ever employed it, there was not only the usual dropsy and anæmic condition dependent upon Bright's disease, but the periosteum of the tibia had become thickened, and effusion took place into the knee joints. It was mainly for this latter affection I first prescribed it, and its good effect was remarkable not only upon the joints and periosteum, but upon the general anasarca. That the iodide of potassium would not only cure for the time being, but would prevent a relapse of the disease, would be too much to say of any medicine. It does not diminish our trust in mercury, that secondary symptoms will return even after the system has been apparently fully saturated with the antidote. It will, I hope, be sufficient to recommend iodide of potassium to notice, as a remedy for albuminuria and its consequent dropsy, to say that in some cases it seems to effect a cure, and that in many cases it will be found to remove again and again the secondary dropsy. I have already observed, that it was not mere empiricism, but reflection upon the power of iodide of potassium over the function of secretion and absorption, that led me to its employment. The above observations, it is scarcely necessary to say, have reference to the treatment of the disease only in its sub-acute or chronic form.

I shall now relate some of the cases noted by Mr. Currin, Clinical Clerk.

Case 1.—Francis J. Hedley, formerly a soldier, æt. 38 years, admitted into No. 2 Ward, Whitworth Hospital, August the 28th, 1854.

On admission he presented a very anæmic appearance, his lower extremities and entire body enormously œdematous, and there was considerable effusion into the peritoneum; the scrotum also was very much distended, almost to bursting; the surface of the body was dry, the upper extremities were emaciated and free from anasarca.

He complained of dyspnœa, great debility, increased action of the heart, and a liability to catch cold on the slightest exposure; he suffered also from constant dull pains in the lumbar regions, which extended down into the testicles and groin. At the period of his admission the appetite was good; he was, however, occasionally subject to nausea and slight retching in the mornings. He complained much that he never of late enjoyed natural refreshing sleep; it has been uncertain and disturbed by dreams. He was inclined to be very drowsy and stupid; the bowels were constipated, and required a very brisk purge to give a free motion. Pulse small and weak, eighty per minute. He passed about two and a half pints of pale-coloured urine per day, which when shaken, frothed up like beer. On testing it with heat and nitric acid, it was found to be very albuminous, fully a third of the fluid tested being converted into a mass of albumen; its sp. gr. was 1.010.

He states that, up to the period of his illness, he had led an intemperate life; he

had served several years in India, and had been exposed to great hardships there. He was attacked in April, 1852, at Rangoon, with dysentery, from which he slowly recovered; after this he was subject to repeated attacks of diarrhœa up to the month of January, 1853, when, for the first time, he perceived his feet and ankles to swell. About this time his urine was diminished in quantity, of a blood-red colour, and he experienced a frequency and some pain in voiding it; since then the swelling has slowly advanced, extending up the legs and thighs, and finally reaching the abdomen, which latter became greatly distended. His general health became impaired, and he was dismissed from the service. From the first appearance of the anasarca up to the time of his admission, he has never been free from it; it has gradually progressed until it has arrived at its present state, the legs and thighs being now nearly twice their natural size, and presenting a white, glistening appearance.

From the time he became ill up to the present, he has been under various modes of treatment.

Treatment.—August 29th.—Ordered potassæ sup. tart. ℥ ss., statim sumend.

August 30th.—Repetatur pulvis.

August 31st.—He states that he has derived much benefit from the powders; they not only gave him free stools, but also acted as a diuretic. Repetatur pulvis.

September 3rd.—Bowels constipated to-day, and he is suffering a good deal from flatus. Ordered: ℞. Spt. terebinthinæ, 3 ij.; Olei ricini, 3 vj. M. Ft. haustus, statim sumend.

September 4th.—Much better. Rep. pulvis supertart.

The cream of tartar was continued with good effect for a few days longer.

September 7th.—Ordered: ℞. Misturæ iodidi potassi ℥ i. ter in die; 5 grs. of iodide and 5 grs. bicarbonate of potass. Each oz. of this mixture contains a teaspoonful of confection of jalap, pro re natâ. He was also ordered, Lotionis nitratis argenti ℥ ij. (gr. x. ad ℥ i.) to paint with a camel-hair brush over the distended scrotum.

This treatment was continued for a fortnight, when the swelling was found much reduced; the scrotum had contracted to its natural dimensions.

September 22nd.—His general health much improved; urine still very albuminous, sp. gr. 1.012. He was allowed generous diet, mutton chop for dinner, &c. The same treatment to be continued, only that 3 grs. additional of iodide of potassium were ordered to each ounce of the mixture.

He continued taking the iodide regularly, and the confection of jalap every night, or when necessary, up to the 10th October, when the anasarca was found to have almost disappeared, with the exception of a slight pitting about the ankles; the ascites has entirely disappeared; he now rests well; he does not suffer much from the lumbar pains, nor from dyspeptic symptoms; he says he is quite well and wishes to be allowed to get up. Ordered to continue the iodide, and to have a tepid bath twice per week.

[October 12th.—He was much improved, stronger, anasarca very slight, and the albumen was scarcely perceptible in the urine.

October 31st.—No appearance of any anasarca, urine free from albumen, looks very much improved, and was discharged cured.]—*Dub. Hosp. Gazette, Jan.* 15, 1855, *p.* 371.

41.—*Diuretics in Renal Dropsy.*—A few days ago, Dr. Burrows, at the bedside of a patient who was recovering from a very severe renal dropsy, made the following remarks:—"I wish, gentlemen, that you should notice the treatment which has been here pursued. I well recollect that long ago it used to be Dr. Latham's observation that this form of dropsy was often very efficiently treated by the tartrate of potash. That salt was indeed his favourite remedy. Then came the addition to our pathological knowledge, and the announcement of the fact that the disease was essentially one of real disorganization. From this it was thought to follow clearly that whatever stimulated or irritated the kidney must do harm. Diuretics consequently fell into almost universal disuse. Latterly, however, some of us are again coming back to the old *practice; we find that* no other remedies effect so much

for the relief of the patient as diuretics, and we therefore prescribe the latter. The matter is one of experience, and my own is to the effect that the kidneys, though in a state of chronic disease, obey diuretics well, and that no inconveniences are produced." The prescription which the patient in this case had been taking was as follows :—℞. Potassæ tartrat. 3ss., spirit. æther. nitr. 3ss., aquæ piment. ℥j. Ft. haust. ter die. The case was, of course, one of chronic dropsy, and the diagnosis as to its renal cause had depended upon the absence of cardiac disease, and the presence of a large quantity of albumen in the urine.—*Med. Times and Gazette, July* 7, 1855, *p.* 8.

42.—*On Asparagus as a Diuretic.*—By Dr. S. J. Jeaffreson, Leamington.—Take of dried tops of asparagus, five ounces; proof spirit, two pints. Take of fresh tops of asparagus, five pounds. Bruise and press out the juice; evaporate at a low temperature till reduced to one pint, and strain. Lastly, add a pint of rectified spirit. Baly, chemist, of Warwick, can furnish any person desirous of trying the tincture with a limited supply, and will be happy to make any quantity that may be ordered of him.

The peculiar odour communicated by this substance to the urine, in a remarkably short time, is perhaps as familiar to the laity as the profession. It was this fact that first led me to think that asparagus might constitute a valuable adjunct to our list of diuretics; if not indeed by virtue of any specific diuretic quality it possessed, at least by its power of directing other agents of acknowledged diuretic power to the kidneys.

On referring to such authorities as fell in my way, I found that, while some mentioned asparagus as a diuretic in general terms, without any specific reference to its medicinal administration, others omitted entirely to notice this plant, and some others denied its diuretic properties entirely. It appeared to me evident that any deductions drawn on this subject had been founded entirely on its effects as an article of food, and not upon any direct experiments of its medicinal administration. The fallacy and uselessness of such deductions is sufficiently apparent; upon generalisations so vague, we might have discarded numerous of our best remedies as deleterious, innocuous, or useless.

Suffice it to say that, after some sixteen years' experience, I have found the tincture of asparagus a useful adjunct to our diuretic remedies. In many cases, I have found it possessing direct diuretic properties when taken alone in water; but, in still more instances, I have found it most useful in promoting the diuretic properties of other drugs, as I conceive, by directing them at once to the kidneys. I have repeatedly, in my own practice, as also in consultation, simply added from half a drachm to two drachms of tincture of asparagus to each dose of an unsuccessful diuretic, and found that copious diuresis was the result.

Mr. Baly informs me that the exact loss by weight in drying the plant is eleven parts out of twelve; in other words, that twelve parts by weight of the fresh shoots are only equal to one part of dried. I have not tried the infusion of the dry shoots, but should think them worthy of trial.

The tincture of asparagus presents the advantage of being capable of combination, so far as I know by experience, with every diuretic substance in use, be it from the animal, the vegetable, or the mineral kingdom.—*Assoc. Med. Journal, May* 17, 1855, *p.* 439.

SURGERY.

AFFECTIONS OF BONES, JOINTS, ETC.

43.—AMPUTATION AT THE HIP-JOINT.

By Thomas Tatum, Esq, Surgeon to St. George's Hospital.

[This case of a young man, aged 17, at St. George's Hospital, with encephaloid of the femur, has given rise to much consultation and speculation as to the propriety of so dangerous an operation as amputation at the hip-joint. Opinions seem about equally divided in the surgical world.]

Encephaloid is perhaps the most frequent form of cancer found in the long bones, the epiphyses more especially, as in this case, being the parts first seized. Mr. Syme has given it as his opinion that resection of the head of the femur has never saved a single individual. Would, then, the equally formidable operation of amputation at the hip be followed in this case with any benefit? It has been stated, however, on the authority of two of the most experienced London hospital surgeons, that amputation for encephaloid disease had extended the life of one patient twelve, and another eighteen years. In the present case the tumour had been growing since Christmas. The young man said he had first injured the limb by striking it with a stick; but on examination of the limb after removal, the disease was pronounced by the surgeons of the hospital to be well-marked encephaloid.

When we come to statistics, the finger-posts, so to speak, in the road to such inquiries, we find the figures point to the hopeful side. Of 20 old cases of amputation of the hip given by Chelius, 6 are said to have recovered. This result in itself appears very little; but it will be remembered that in 20 cases of all amputations of surgery put together, only 15 are found to recover—cases all taken at least from the same field of hospital inquiry. Since the last century, however, and more especially since the introduction of chloroform, cases of recoveries in amputation at the hip are more frequent. The chances of recovery may now be considered exactly equal to the chances in cases where the operation does not succeed, being as 42 to 56. In 98 cases of hip-joint amputation collected by Dr. Smith, of the United States, of 30 of those amputated for injury, 18 died, and 12 recovered; whilst in 32 cases in which it was performed for chronic disease, as in the present instance, 16 died, and 16 recovered.

If we have not succeeded of late years, as observed by Mr. Tatum, in preventing such diseases as encephaloid, if six recoveries in twenty cases hold out but slender hopes of benefit, yet we have improved the mode of operation. Many of the older cases of deaths in hospitals may be fairly ascribed to the imperfect modes of operation then in vogue, and to the surgeon interfering when too late with malignant disease. Chloroform, too, has worked a signal change in this point, even the present terrible operation having lost most of its usual horrors. Surgeons accordingly operate earlier, and the result is better; if there be any truth in the maxim, "*venienti occurrite morbo*," it belongs in a very peculiar manner to chloroform and cases such as those we are considering. Children, it is said, bear operations and amputation at the hip-joint better than adults. Professor Syme's opinion, based on a large experience, is not shared by the majority of modern surgeons, especially in France, where it is believed that by removing the diseased head of the femur in old cases of hip disease (morbus coxæ), and applying the actual or galvanic cautery or other stimulants to the cotyloid cavity, thus preventing pus accumulating, and dead bone acting as a foreign body, a very great deal of good is effected, and much suffering avoided.

In 19 cases of hip-joint *excision* we find 11 recoveries; 10 are given by Sedillot, 3 by Fergusson, and 12 *at the Medical* Society of London. Professor Syme's

opinion may yet be true, that the patients recovered notwithstanding or in spite of the operation. Such cases may be, however, very fairly compared to amputations, and such statistics in the present case at St. George's Hospital, together with the later statistics of amputation as given more especially by Mr. Sands Cox, led to a decision in favour of amputation at the hip. Of the several modes of operating recommended by surgeons for amputation at the hip-joint, as explained to his class at St. George's by Mr. Tatum, that by a large anterior flap, as recommended by the Paris surgeons, is now considered the best.

Mr. Abernethy was one of the first at St. Bartholomew's Hospital to improve the old method of tying the artery first, and then disarticulating. Mr. Abernethy's plan was to press the artery against the os pubis, and thus control the hemorrhage. Mr. Syme suggested it also very early, and was followed by Mr. Liston, who recommended cutting downwards, keeping close to the bone, so as not to injure the artery, till the end of the operation, when the knife was carried outwards, and the assistant grasped the flap and vessel. The new plan of operation of Sir Astley Cooper was given originally in 'The Lancet,' vol. ii., 1822, p. 95, and consisted of carrying the knife in an elliptical curve, beginning just below Poupart's ligament, a little to the outside of the artery, the incision carried downwards and outwards to the back of the thigh, the artery then tied, and the bone disarticulated. The "circular" method of Græfe, as well as this operation, are not used now. The plan also by two lateral flaps has fallen into disuse; the external flap is too thin, and unites badly to the internal parts. The method by one internal flap is better, and seems adapted to cases where the patient is very much emaciated, but otherwise this flap, in hospital practice, is found to be too large and too heavy, and not easily kept in apposition.

All these operations, in a word, have now yielded to the later experiences of chloroform, and the single anterior flap. The chief advantages of this method are the following:—First, that, as in the case of Mr. Erichsen just cited, or in Mr. Charles Guthrie's patient, the artery is grasped by the assistant with the flap even before the vessel is divided; the operation is quickly done; the flap when cut anteriorly falls by its own weight into its place; purulent collections escape more readily; and, lastly, the wound consists of one continuous surface, not, as in other operations, the apposition of incongruous parts, like the external and internal muscles dragging different ways. The chief danger to be apprehended in amputation of the hip is excessive hemorrhage, the incision being so high up that no tourniquet can be applied, and no pressure of the artery at the groin trusted to. Some even of our oldest surgeons—amongst whom we may mention Mr. Lawrence and Mr. Stanley—never saw the operation before the present opportunity; we are, therefore, the more particular in describing it. The large anterior flap is formed by transfixion, the patient's body being brought well forwards on the edge of the table, so that the nates project, while the sound limb is secured by an assistant. The knife must be fourteen or sixteen inches long, and enter on the left side, two fingers' breadth below the anterior superior spine of the ilium, and carried deeply in the limb behind the vessels, and across the joint, its point issuing immediately above the tuberosity of the ischium. The limb, which during this stage of the operation was slightly flexed on the abdomen, was now forcibly abducted and everted when Mr. Tatum opened the capsule. The head of the femur at this point, if it be pushed up, starts out at the acetabulum; the remainder of the capsule is then cut, and the posterior flap made by carrying the knife downwards and backwards. If the operation is performed on the right side, the anterior flap is of course formed by the insertion of the knife in a reverse direction above the tuberosity of the ischium. A good deal depends on the assistant, as we have said, slipping his finger under the anterior flap as it is being formed, and compressing the femoral. No blood was lost from the artery.

The operation in this case was performed on the 5th of the present month (July). The after treatment has not presented any peculiarity. The patient has had wine, beef-tea, and opiates; and, except that he feels the "twitches of his toes," as he calls it—of a limb that has been in the museum three weeks—the poor fellow seems to be quite well.—*Lancet*, *July* 28, 1855, *p.* 77.

44.—SUCCESSFUL EXCISION OF THE KNEE-JOINT.

By Oliver Pemberton, Esq., Surgeon to the General Hospital, Birmingham.

[Edwin Fowl, aged 12, a pale, strumous-looking boy, was admitted into the General Hospital, December 20th, 1853, for disease of the left knee, of fourteen months' duration. The leg formed a right angle with the thigh, the circumference of the joint was three inches and a half more than that of the opposite one. The integuments were shining and painful. His sufferings were very great, especially at night; several apertures of sinuses communicated with carious bone. By rest and good diet he improved for a short time, but hectic and diarrhœa set in, so as to necessitate an operation. Accordingly, on the 8th of February, 1854, it was determined to excise the joint.]

An incision was carried from a little above the outer to a little above the inner condyle, across the front of the joint, below the patella, dividing its ligament of insertion down to the spine of the tibia. The flap thus formed was turned back; and the cavity of the joint was fairly exposed. The disorganized soft parts having been cleared away from over the femur, it was sawn through above the condyles, without the aid of a spatula, or the introduction of a knife: the same process was next applied to the head of the tibia; and the articular extremities were then removed in their connected state, by a cautious dissection of the soft parts beneath, commencing from above downwards. The hemorrhage was inconsiderable; no ligature was required. The amount of bone removed measured rather more than three inches and a half. About two inches and a half belonged to the femur; and about an inch to the tibia. The patella was left, its under surface being scraped. The head of the fibula was not interfered with. The operation being finished, the leg was readily brought into a line with the thigh. The flap containing the patella was simply laid, in as accurate a state of apposition as possible, over the parts beneath, without the aid of sutures, and was covered with water dressing. The entire limb was then adjusted on a straight splint, reaching from the buttock to the ankle, furnished with a foot support, and with side pieces to the thigh and leg; the knee being left perfectly free on the sides and above, for the application and renewal of dressings.

Examination of the Diseased Parts.—The synovial membrane was everywhere affected by disease. It presented a pulpy, thickened condition, and was of a brownish tint, and covered in places by bloody discolorations. The cartilage covering the tibial surface of the outer condyle was destroyed, as was also the corresponding surface of the semilunar cartilage of the tibia. The entire thickness of cartilage on the inner condyle and tibia was not altogether destroyed, but was in process of ulceration. The extremity of the femur above the condyles was blackened, and denuded of periosteum. The bone was soft and carious. Fresh osseous material had been thrown out behind the condyle and on the head of the tibia. The medullary canal of the bone did not present an unhealthy appearance.

No shock followed the operation; and but a single restless night marked the presence of any constitutional disturbance. The warmth of the limb, below the seat of operation, never varied. The patient had scarcely any pain, and could in the course of a fortnight exercise complete command over the muscles of the foot and leg.

Three months afterwards, the following note was made.

The healing of the wound had been retarded by the thickened character of the integuments. The parts in the situation of the joint were becoming firmer and more consolidated. The boy possessed perfect control over the movements of the foot, and turned it, with the entire limb, either inwards or outwards. The splint was discontinued, and the wound was firmly strapped and rolled.

Four months after the operation, the wound remained open slightly at the sides. A gutta percha splint was applied behind the joint; and the boy was directed to be out of doors on crutches. An accurate measurement was made of the two limbs, when it was found that the difference between them exactly corresponded to the amount of bone removed—namely, three inches and a half.

The patient remained in the hospital until October; more for the purpose of

observation, than from any necessity. When discharged, eight months subsequently to the operation, the wound had entirely healed. One of the sinuses, existing previously to the operation, over the patella, still discharged. He could walk with the aid of a stick and a high-heeled shoe; the knee being supported by a leather case.

I saw the boy so recently as the 23rd of last month (April). The limb was quite straight. The wound was sound. The union appeared to be ligamentous. He could walk about anywhere with his leather case and stick.

Remarks.—The foregoing case I had the honour to bring under the notice of the Birmingham and Midland Counties Branch of the Provincial Medical and Surgical Association, at the meeting held on the 3rd of May. It was accompanied by a series of observations, in reference specially to the operation of excision of the knee; but as those observations were arranged mainly with the view of placing before my audience the present state of our experience on the question, in order to elicit discussion, and as I am preparing a memoir upon the subject of the operation in all its bearings, I have contented myself, on the present occasion, with simply placing on record the case, together with a few comments on its more prominent features.

Assuredly, one of the most remarkable circumstances connected with the operation, is the entire absence of shock. There were never present any symptoms of such a condition. I believe most fully that the constitutional disturbance was diminished by the extirpation of the diseased parts; as the hectic and diarrhœa, markedly present before the operation, ceased on its performance. With regard to hemorrhage, the articular vessels, on being divided, spurted out for a moment, but did not require ligature. No venous oozing occurred. I was particularly struck by the continuance of the warmth in the limb, the temperature of which never varied. A slight amount of pain was experienced; much less, indeed, than what we should expect to find present in so large a wound, involving, as it did, the extremities of bones, rendered free to move on raw and tender surfaces. Yet there was no starting of these extremities; there was no painful throbbing and quivering in their vicinity. The movements of the toes, and the command generally of the foot and leg, appeared to be scarcely interfered with. Within a few weeks, the patient could move the foot inwards or outwards with ease, or maintain it in the upright position. The suppuration was never profuse; never so great as that which would arise from a flap amputation of a thigh of the same dimensions as the patient's. The granulations of the wound wanted tone, it is true; but that would be an inevitable condition of a large wound, involving thickened integument, and existing in a strumous habit.

The mode of operation which I adopted appears to me to be deserving of attention.

Having divided the soft parts by the semilunar incision, as first adopted by the late Mr. R. Mackenzie, and having turned back the flesh containing the patella, so as fairly to expose the interior of the joint, I applied the saw to the femur and tibia, and divided the required amount from their ends by a careful use of the instrument; the soft parts being undisturbed by the needless introduction of a spatula. The separated extremity of the femur was then raised, and, together with the tibia, was removed by a dissection from above downwards; such ligamentous attachments as were left undestroyed by the ravages of the disease still being permitted to connect the two bones. By adopting this method, the time occupied in the operation was considerably shortened; but what was still more important, by thus keeping the connexion of the articular extremities unbroken, their dissection from the popliteal vessels was rendered safer and easier. By this process, the operator can have the upper soft parts depressed by an assistant where the contiguity of the vessels is of comparative unimportance, whilst he is enabled himself to raise the back part of the joint from the more perilous vicinity of the vessels inferiorly, so as to complete the undertaking in safety.

Mülder, in the Hospital of Gröningen, first insisted upon this; though I am not aware that his valuable suggestion has been carried out by any one save myself.

Wachter, in his 'Dissertatio Chirurgica de Articulis Extirpandis,' observes:—"The illustrious Mulder did not deem it necessary to remove the ends of the *bones separately, as Park* did. Hence no inconvenience arose: and the ends of

the bones were able to be extirpated admirably. These being taken away, nowhere, not in the deepest part of the wound, was the popliteal artery uncovered; consequently, there was little fear during the operation lest it should be wounded."

In the preceding description of the plan I adopted, I say that the soft parts were undisturbed by the needless introduction of a spatula. Now, so far as I am aware, this is the first instance in which the articular extremities have been so divided. Hitherto, a broad spatula has been introduced; and upon its protecting surface the bones have been sawn through. The advantage derived from the operation I recommend—namely, that of avoiding disturbance of the soft tissues—is so obvious, that I am surprised it has escaped observation.

Mr. Butcher, in his recent essay on excision of the knee, minutely describes a particular saw, with which he removes separately the protruded bones, cutting them from behind forwards, away from the vessels. Not, however, admitting the danger of sawing down to the soft parts, I cannot, in my own judgment, admit the advantage of this instrument in the operation in question, as described by this able surgeon.—*Assoc. Med. Journal, May* 18, 1855, *p.* 463.

45.—DISEASED TARSUS; "PEREGOFF'S OPERATION."

By JOHN SIMON, Esq., F.R.S., &c.

[This is a new kind of operation, lately brought into notice by Mr. Syme, as tried in St. Petersburgh, and of very great interest and importance.]

It is curious what a multitude of surgical experiments have been tried on the ankle-joint and foot. It was only in the year 1814 that M. Roux, in a tour through English hospitals, first showed our elder surgeons what was then well known on the continent as "Chopart's operation." Since then we have adopted it as well as Syme's; we have also had the operation of Mr. Wakley, and the one performed by Mr. Teale, of Leeds. To these is now added "Peregoff's operation," a very obvious improvement in those cases adapted to it. We need scarcely say, that where the calcaneum and astragalus are not diseased, Chopart's is best; if these two bones are very much diseased, then Syme's operation; if the calcaneum be sound, then Peregoff's. It is objected against the last-named operation, that this bone is very liable to caries, and it is not desirable that any of it should be left. It has been stated that the operation is more difficult than the more familiar one of Syme; that the use of chain-saws, &c., is more tedious. Much of this is obviated by the use of the saw used by Mr. Simon, known as the "Dublin saw," with which in the present case he incised the calcaneum with the greatest ease and quickness, dispensing entirely with chain-saws, &c.

The young man, the subject of the operation in the present instance, stated that the disease of the bones of the foot had existed eighteen months. There was a large fungus-hematodes-looking mass sprouting from the inside of the sole of the foot, the back part of this articulation being apparently healthy. The patient did not appear emaciated, or much worn down by the disease; the foot and tarsus were much swollen, but not more than in ordinary cases; the foot, in other words, presented all the usual signs of very much diseased tarsus, the probe going down deep into a mass of carious bone, the red-looking mass, however, being rather congealed blood than true fungus hematodes.

The operation very evidently differs from all those already mentioned, as being not so much an amputation, as suggested by Syme and Chopart, as resection of the ankle-joint. One sees at once that, with the two bony surfaces exposed, it is a modification of the idea of resection of the knee or elbow; indeed, in the dead body, quite an admirable stump or new foot is formed; but we were not prepared, it must be confessed, for such a perfect operation as that performed by Mr. Simon—the coaptation of the sawed end of the bones and the excellent stump struck many persons present as being something very novel, but apparently more useful. With respect to the slowness with which improvements in surgery make their way, the history of Chopart's operation is sufficient evidence. "If one may not be thought unpatriotic in these bellicose times," Mr. Simon quietly observed to

his class before the operation, "in having any communication with the enemy, or adopting anything from St. Petersburgh, we certainly have here a very nice and very new operation, not before performed perhaps in this kingdom. One observes the idea of advance well marked, or what one is familiar with now in surgery as conservative operations." Surgeons are very slow, no doubt, to adopt any suggestion, from the fact of its mere newness or novelty, so highly prized in medical societies, of which we have had a memorable instance in compression in aneurism; the improvement must bring its own recommendation in being an improvement.

The operation, in its earlier steps, was almost identical with that of Syme's; it appeared to us, however, to be done in half the time, as the most expert surgeon will now and then get into the hollow of the calcaneum, in disarticulating this bone; whereas Mr. Simon, in the present case, the moment he had cleared the astragalus, cut through the calcaneum quite easily and rapidly with the new saw. The man having been placed carefully under chloroform, one could observe each step of the operation, as if it were one of Mr. Fergusson's surgical operations on the dead body. The usual transverse incision was first carried across the sole of the foot, from the external malleolus to the opposite point on the inner malleolus. This incision must not be carried too far forwards, or the surgeon will have too much flap; the second incision is carried rapidly across the instep, in the usual manner, meeting the ends of the former. The astragalus, apparently healthy, was next forcibly disarticulated, the foot forcibly held down till the lateral annular ligaments, flexor tendons, with the accompanying posterior tibial nerves, vessels, &c., were freed. We observed also that Mr. Simon cleaned the line of incision for the saw, so as not to lacerate the periosteum. The incision, as we said before, was then run rapidly through the end of the calcaneum. One very thin slice also was shaved off the ends of the tibia and fibula, removing, of course, the cartilage and malleoli, when these two freshly-cut bony surfaces seemed to come together almost as perfectly as if cut from a pattern to do so. One or two very small vessels, previously controlled by the tourniquet, were tied, the parts brought together by ligature, some adhesive straps, and one gutta percha splint also applied, and the man removed to bed. Some of the older surgeons, as Chopart, waited to tie each artery as soon as it was divided, on the instep, the anterior tibial, and in the sole of the foot, the plantar arteries, the patient writhing in pain; but this is easily obviated by a tourniquet, on the thigh. If the present method should be adopted as preferable to amputation, it has the obvious advantage of leaving one limb almost as long as the other.

In cases of gun-shot wound, or gangrene of the foot from frost-bite in the army, it does not seem more tedious than other operations. The fact of leaving a limb as long, or all but as long, as the opposite limb in walking, would be a very manifest improvement over the more ordinary operation of amputation, and high-heeled shoe. It may appear to many rather singular why this very obvious operation never suggested itself before—why we should be indebted to a Russian surgeon for a plan of removing a diseased foot, that almost lay in the road of so many experimenters. We believe the secret is to be found in the more general use of chloroform in operative surgery, as we previously mentioned in reference to resection of joints. Resection was all but unknown previous to the discovery of anæsthetics. Since then, all good surgeons have familiarized their minds with the fact of resection, and adopted in practice the coaptation of newly-cut bony surfaces, as in the elbow and shoulder; the operation of Peregoff being nothing more than a further, and, as appears to us, on the whole a valuable, but, of course, still new and speculative extension of the same principle.

We have seen two cases lately where the os calcis, or part of it, was removed, at the inferior and back part of the foot, one by Mr. Hilton, at Guy's; the second by Mr. Paget, at St. Bartholomew's. It does not appear to us that this bone is particularly subject to sloughing; much will depend, of course, on the age or other condition of the patient, together with the hard brawny character of the integuments of the heel. These conditions, however, will apply, perhaps, to Syme's operation as much as Peregoff's.—*Lancet, May* 12, 1855, *p.* 484.

46.—CHRONIC INFLAMMATION OF THE KNEE-JOINT.

By William Coulson, Esq., Surgeon to St. Mary's Hospital.

[*It* is by no means easy to form a correct classification of this disease, for cases which present great differences, often in reality differ merely in intensity, and in the slow or rapid manner in which the disease may have passed through its different stages; on the other hand, if we were to adopt the classification of Sir B. Brodie (which perhaps is the best), and divide them according to the tissues in which the disease has originated, yet still we are exposed to error, for in many cases it is impossible to say in what tissues the inflammation has commenced. We must, therefore, be content with directing our attention to the principal features which characterize certain groups of cases, and the differences connected with the influence exercised by the constitution of the patient.]

In some healthy subjects beyond the middle period of life, the disease often commences in an acute or subacute form, and subsequently becomes chronic. It has appeared to me that these cases are more manageable than such as are chronic from the commencement. They do not present the same tendency to the development of false membranes in the joint, or to the deposit of plastic materials outside it; they do not so often terminate in suppuration or eventual destruction of the joint. There are, on the other hand, many exceptions to this, for simple chronic inflammation, with the deposit of coagulable lymph, which has no tendency to become modified (and such I suppose to be the state in these cases), may at any time degenerate into an inflammation of a less favourable character.

In patients afflicted with scrofula, and in those of a decidedly lymphatic temperament, the disease is attended with some peculiarities which are worthy of attention. This form of the disease has been called scrofulous inflammation of the joints; but, as Mr. Lebert has justly observed, it would be more correct to designate it "inflammation in scrofulous subjects," because if we except the deposit of tubercular matter in the bones or soft tissues (and this is far from being constant), there is nothing either in the symptoms during life, or in the changes discovered after death, by which it can be distinguished from the disease, as it often occurs in persons who are entirely free from a scrofulous taint. In these, as well as in scrofulous subjects, we may find pulpy degeneration of the synovial membrane, inflammation of the spongy ends of the bones, great tumefaction of the soft parts external to the joint, and numerous abscesses; and all that we are strictly entitled to say is, that there is a greater tendency to such changes in scrofulous subjects than in others.

Inflammation of the joints in scrofulous subjects is chiefly characterized by the following circumstances:—It is extremely chronic; influenced as the disease is by the general health of the patient, it may continue for years, with alternations of improvement and relapse, finally disappearing about the period of puberty, with the other effects of the scrofulous diathesis. It manifests a great tendency to terminate in suppuration, and in the development of cellulo-vascular or fungous tissue in the synovial membrane, in the spongy ends of the bones, and in the soft parts around the joint. The development of this tissue in fine filamentous layers on the synovial membrane constitutes the pulpy or gelatinous degeneration of modern pathologists. When developed in the spongy tissue of the bones, it produces rarification and softening of the areolæ, and constitutes the scrofulous disease of the joints of Sir B. Brodie. When deposited in great abundance in the soft parts external to the joint, it forms the pale-coloured round and shining tumour which our predecessors denominated "white swelling." The disease in scrofulous patients has a greater tendency to commence in the osseous tissues of the joint than in the soft parts; still it sometimes commences in other parts. Every surgeon in extensive practice must have had an opportunity of examining cases after death, in which the disease was confined to the synovial membrane; and our medical journals for the last few years, during which so much attention has been directed to the excision of joints, contain numerous instances of pulpy degeneration of the synovial membrane, without any corresponding affection of the bones, or with changes so slight as to lead to the inference that the inflammation of the synovial membrane *had preceded that of* the hard parts by months and years.

Another characteristic of the scrofulous form is, the insidious manner in which it often commences. This is particularly remarkable in the knee-joint. The early symptoms are, in many cases, so slight that the patient makes no complaint of pain. The disease seems to commence in some derangement of the motor power, a slight awkwardness in the gait, an almost imperceptible limp. This may go on for some weeks before any pain is felt, or, at least, before any pain is complained of. When pain does set in, it is not felt, in the first instance, during a state of rest, but is produced by exercise; gradually it appears at night, becomes more severe, and then follows the usual course. In the latter stages of the disease, certain peculiarities may also be observed connected with the scrofulous element. The suppuration is abundant. In some cases the pus contains broken-down tubercular matter. The abscesses are numerous, and may open at considerable distances from the joint. When ulcers form, they present the appearance of other scrofulous ulcers.

Chronic inflammation of the knee, as well as of other joints, may commence in the synovial membrane or in the bones. We know this to be the fact from pathological anatomy; and it seems highly probable that the form of the disease, in its early stage, will be modified according to its origin; but it must be confessed that we still want a series of carefully recorded cases to determine the exact relation which exists between symptoms and lesions. In some well-marked cases, seen at a very early stage, and when the joint is superficial, it may be possible to say, "here the bones alone are affected, there the synovial membrane;" but every surgeon must confess that he has met with numerous cases in which it was impossible to draw this distinction either from the history of the case or the actual aspect of the diseased parts. Here is one example for you amongst many:—The patient, a man beyond the middle period of life, having always enjoyed good health, was attacked with inflammation of the knee-joint. The joint became excessively swollen and painful in a short time. Within a fortnight it was so painful as to confine the patient to bed, and was double the size of the sound joint. Abscesses soon formed in spite of treatment; the patient's health gave way, and in about two months amputation became necessary. Now, the course and history of this disease would lead us to conclude, according to received notions, that it was inflammation of the synovial membrane. But what were the post-mortem appearances. Various abscesses in the periarticular tissues, some of them communicating with the joint; ulceration of the cartilages in various places, particularly in front of the internal condyle of the femur, where the bone was denuded; small fungous growths projected from the denuded surfaces of bone. The cartilages of the tibia were loose; the spongy tissues carious, soft, and infiltrated with pus; the end of the femur was in the same state. The synovial membrane is described as having been soft, and ulcerated in many parts. Now here is a case in which the symptoms indicate inflammation of the synovial membrane, while pathology reveals inflammation of the bones; and the unavoidable conclusion is, that there is something defective in our symptomatology. However this may be, it is necessary for me to point out to you the characters which, according to our best authorities, distinguish chronic inflammation of the knee-joint according to its seat—that is to say, according as it originates in the synovial membrane or in the bones.

When the disease commences in the synovial membrane, we have pain and tumefaction of the joint at an early period. The pain is severe, and increased by motion; the exacerbations of pain are more frequent and more severe; it is more generally diffused over the joint, instead of being confined to a particular spot. The swelling sets in early; it is soft at first, from effusions of fluid within the joint; it then becomes more firm, and is limited by the synovial membrane, appearing at those points where the membrane yields most readily. Hence, it first appears about the sides of the patella, or above that bone. M. Leuret observes that the surface of the affected joint feels warmer than natural; but Mr. Stanley, on the other hand, gives increased temperature as a sign of inflammation of the bones, and I am more disposed to adopt his opinion. The progress of the disease is more rapid when it commences in the synovial membrane; abscesses are soon formed, and the secretion of pus is more abundant.

When the disease commences in the bones, the extremity of the femur is the

part often affected; though, from my own experience, I should say that the tibia is most frequently attacked. The pain is extremely slight at first—often absent, the earlier symptoms being some stiffness of the joint, or slight lameness. This may continue for a long time before pain is complained of. We are agreed in this country as to the slight nature of the pain in cases of incipient inflammation of the spongy ends of the bones; but it is right to mention, that Rust, my old preceptor, and a great German authority in articular diseases, mentions severe pain as one of the peculiar characters of this same affection. The swelling of the joint is different when the inflammation commences in the bones; at first, it takes the form of, and is confined to their articular extremities. The ends of the bones appear to be enlarged, and there is little tumefaction from effusion of plastic matter or serum in the joint, or about it. At a much later stage, swelling ensues, and follows its course, the synovial membrane and soft tissues becoming implicated. The progress of this form, as I have said, is usually very slow; but, as I have likewise observed, the absence of pain and tumefaction to a considerable degree, is not sufficient to enable us to decide the question of locality. I have seen many cases in which the disease commenced in the synovial membrane: it was extremely slow in its progress, the effusion of plastic matter was slight, and its tendency to become organized into false membranes, &c., was very slight also; there was little swelling; less pain. In this state has the disease continued for months. Suddenly it becomes more acute; abscesses form; the health gives way; the limb is amputated, and on examining the joint, we find lesions confined exclusively to the soft parts within its cavity.

The treatment of chronic inflammation of the knee-joint is to be conducted on the same principles as those which guide us in the treatment of diseased joints in general; but I shall enter into some details on this important part of the subject for two reasons: first, you will be called upon to treat this joint much more frequently than any other; and, secondly, it is the joint in which the effects of good practice are most remarkable, many a limb being now saved which would have been sacrificed a few years ago. The detailed account which I have given you of the morbid appearances of this complaint in its different stages, will be of much assistance to you towards understanding the *rationale* of the treatment. You have seen how it may be distinguished into three stages: in the first we have chronic inflammation of the joint, giving rise to effusions of plastic matter, which undergoes several transformations, and which leads to suppuration; in the second stage we have abscesses, softening and ulceration of the cartilages, relaxation of ligaments, caries of the heads of bones, necrosis, and secondary luxations; in the third stage we have severe constitutional effects tending to destroy life, or we have a reparative process tending to cure by anchylosis. Let us now consider the treatment as applicable to various circumstances of each of these three stages.

The first stage is inflammation, and the first indication is to subdue inflammatory action. This will be the most efficacious way of preventing the development of those accidental products which tend to disorganize the joint: and here I would warn you that, whatever treatment be adopted, it must be carried out with steadiness and perseverance for a considerable length of time. Chronic inflammation of the knee joint is not easily mastered; it has a tendency to return again and again, after having been apparently subdued; yet it is not beyond our control, and the want of success in many cases should, I am persuaded, be attributed to want of perseverance in continuing or submitting to the proper treatment.

[Bloodletting is little, if at all, applicable to those cases which occur in scrofulous children, and even antiphlogistics will be of little or no use unless seconded by means more efficacious, such as absolute rest of the inflamed joint, and a favourable position of the limb.]

Neither bloodletting nor blisters nor any other remedy, whether local or general, will have much effect in chronic inflammation of the joints, unless the articulation be kept in a perfect state of repose. This condition is absolutely necessary; and if we see so many cases prolonged for months and years in a state of what may be called semi-cure, it is because absolute rest of the joint has been attained in an imperfect manner or for limited periods. This state of rest is procurable by the use of artificial means, but as it is highly desirable that the joint should be placed at rest in a good *position, this must not be* neglected. You know already what I

consider a good position, generally speaking, for inflamed joints. It is one which produces the least distension of the inflamed capsule—the least pressure on the articular surfaces; it is one which will be the most useful should anchylosis ensue.

For the knee-joint, this position consists in a very moderate degree of flexion, the foot remaining in its normal position. No matter what the stage of the disease, we should always endeavour to get the limb into this position. At the early period of which I now speak, it is easy to bring the limb into the extended posture by mere traction of the hands: a few attempts may be required, and if the muscles are strongly retracted, as sometimes happens, chloroform should be employed to relax them. Great benefit will be derived from fixing the limb in this extended position as early as possible. But how is the limb to be fixed? Repose in bed, or on a couch, even at the earliest period, will not ensure the absolute rest which is required to promote the cure. This is the error into which many practitioners fall. The case appears slight, because it has commenced in a very chronic manner; there is little pain, a slight degree of swelling, and an insignificant halt in the gait. Hence the patient is allowed to walk about occasionally, or at the most is directed to repose the limb on a chair or couch. The consequence is, that, as every motion of the limb brings an increased flow of blood to the affected tissues, the inflammatory action is kept up, and the development of accidental tissues is promoted until the disease becomes fully established.

But I shall not say any more about keeping the limb in a state of absolute rest, because in my opinion repose should always be combined with another powerful means—viz., compression of the limb. The means employed for effecting this compression will serve, at the same time, to keep the limb in a state of rest. Observe that I say the limb and not the joint, for it is essential that the whole, or at least, the greater part of the affected limb should be kept in a state of rest, and submitted to compression. The utility of these two means is admitted by all practitioners. What I would insist on is, that they should be employed more extensively than is common—that is to say, that the pressure should extend over a considerable portion of the limb, instead of being confined, as often takes place, to a few inches above and below the inflamed joint. The advantages of compression have been fully established by experience; they may also be rationally explained. Compression of the tissues diminishes the flow of blood; this is a mechanical effect. It also produces an active physiological effect in promoting absorption of effused fluids, and preventing the organization of accidental products. The influence of compression in promoting absorption is well seen in the treatment of cancerous tumours by pressure. This has such an effect in dissipating that portion of the tumour which depends on serous and plastic effusions around the malignant muscles, that some practitioners have been deceived into believing they have cured cancer by its means. For attaining the desired objects through rest and compression, a great variety of methods have been employed. I can only notice the principal. Some surgeons prefer using pressure, in such a manner that absolute rest of the limb shall be ensured at the same time; others employ mere simple bandages, and keep the limb at rest by the use of splints. Sir B. Brodie recommends sometimes one method, sometimes another, according to the severity of the case. In milder cases he employs a calico bandage, with strips of adhesive plaster in alternate layers. Another convenient bandage is made of stiff leather and small spiral wires, secured by a lace. In cases of longer standing, when the joint is more seriously implicated, a greater degree of support will be required. Gutta percha splints may then be applied, or a broad leathern splint may be placed on each side of the limb. This splint is made of stiff cow-hide softened in warm vinegar and moulded on the limb, where it is allowed to dry. To these methods it has been objected that they do not exercise a sufficient degree of pressure, and that they do not ensure perfect immobility of the affected parts. The same objections apply to the hollow splints, and to those made of gutta percha.

The method employed by the late Mr. Scott I have already described to you. The principle upon which he acted was to exercise long-continued pressure by means of bandages and strips of adhesive plaster. In his hands this method produced many remarkable results, chiefly, I believe, because he followed it up with *unwearied perseverance*. Any degree of pressure may be thus obtained; but the *bandages do not fix the limb* sufficiently, and a great deal of trouble is caused

whenever it becomes necessary to remove them. When bandages are employed, flannel, I may observe to you, is a better material than calico, because it is not so liable to become loose. The common starch bandage I cannot recommend. It gives strong support, but is very stiff and disagreeable to the patient, and cannot be adapted to the decreasing size of the limb as inflammation subsides. For my own part, I prefer exercising compression by means of bandages or plaster strips, and rendering the limb immovable by properly adjusted splints. The bandages should extend from the foot to the lower third of the thigh, and the splints should in all cases pass down to the foot, being furnished with foot-boards, to prevent rotation of the foot. This is essential. Bearing in mind these principles, the surgeon may exercise his ingenuity with respect to the best materials to be used. The degree of pressure, I need hardly remind you, must be graduated according to the condition at the affected joint. It should never produce much pain; and if it becomes painful, the bandage should be removed at once. To prevent an unequal degree of pressure, it will be prudent to fill up all the concavities of the limb with thin cotton pads; and when immovable bandages are employed, the prominent osseous surfaces should also be protected in a similar manner. Increased attention to the state of the limb is required towards the close of the first stage, when abscesses may be expected; and if any discharge should have taken place, the splint should be lined with oiled skin.

Next to the remedies just mentioned, counter-irritation must take rank. This means has been employed from time immemorial in the treatment of chronic inflammation of the joints. It is used in various degrees. Sometimes the skin is merely reddened; we then call the means employed rubefacients. Sometimes a higher degree of stimulus is had recourse to; the skin is broken; under this head we may range blisters, tartar emetic ointment, &c. Finally, the extreme degree is produced by the use of cauteries, either the actual or potential, with which I would class setons and issues. Various kinds of rubefacients have been employed—ammonia in oil, turpentine, camphorated spirits, &c., the acids. Sir B. Brodie recommends a stimulating liniment, composed of one drachm of iodine in one ounce of alcohol, or an acid liniment, composed of one drachm and a half of sulphuric acid, half an ounce of the spirits of turpentine, and one ounce and a half of olive oil. These stimulating liniments are only applicable in very chronic cases, when the swelling and pains are slight. Blisters act more efficaciously. In cases where the disease is chiefly confined to the synovial membrane, they promote the absorption of effused fluids in a remarkable manner. The blister should be applied just above the joint, and be repeated frequently; they should not be kept open. Other substances may be employed in such a way as to break the skin, and imitate the action of blisters; these are croton oil and tartar emetic, which produce pustular eruptions, and tincture of iodine, which makes the epidermis peel off. The tartar-emetic ointment should never be used for weakly or scrofulous children. Croton oil, in liniment or plaster, is much more manageable. Tincture of iodine is generally preferred. The joint may be painted over with this substance until the epidermis is entirely detached in brown scales. Counter-irritation to any great extent should not be employed in scrofulous cases; but as these cases are often characterized by effusions into the cellular tissue outside the joints, by the development of cellulo-vascular tissue, and by effusions into the sub-synovial cellular tissue, or underneath the periosteum, mild counter-irritation is useful. The plan which I adopt consists in applying a blister for a few hours over the affected joint, and repeating its application from time to time. In chronic cases unconnected with the scrofulous diathesis, or when the disease appears to assume a tendency towards reparation, stimulating applications may be employed with advantage. Cauterization of the skin acts in the same way as blisters, but it is much more energetic; hence cauteries are not to be recommended except in very chronic cases, and when milder revulsives have failed to produce any effect. The actual and potential cautery has been employed; Rust was constantly in the habit of using it. The actual cautery, however, is not applicable to superficial joints like the knee, and I shall not notice it here. The same remark applies to caustic potass. When the use of caustic is thought advisable, it will be better to employ the Vienna paste, which is more manageable than any other. Moxas and issues are sometimes useful; but they should not be kept open too long, else they lose their revulsive effect, and only weaken *or irritate the patient.*

The general treatment of chronic inflammation of the joints is of as much importance as the local treatment, and in scrofulous cases it is much more so. Indeed it is difficult to understand why a disease so apparently mild in its nature as this often is, should be so obstinate and so difficult of cure, if we regard it as a mere local inflammation. It is not always easy to discover what the nature of the general disturbance is. Many patients are attacked by disease of the knee, who seem to be of good constitution, and who tell you that they have always enjoyed good health; still I cannot help always suspecting something more than a local malady, and I would advise you in all cases to inquire most particularly about the general health of the patient, and endeavour to restore the several functions to a natural condition. The most active general remedies are mercury, iodine, and cod-liver oil. Mercurial preparations are administered with most advantage in cases of synovitis, when the inflammatory symptoms are rather active, and when they have become so during one of the exacerbations to which I have so often referred. It is unnecessary to insist on the circumstance that the general health of the patient must be such as will admit of the use of mercury. Iodine seems to be indicated rather in chronic cases, where no active symptoms are present, where the joint is much swollen and the swelling firm, where the patient's health, without being broken down, is not exactly what we would wish it to be. It may be used in frictions, and given internally, under the form of iodide of potassium, in doses of from three to five grains twice a day. To produce any effect, the iodine must be continued for a considerable time—say a month; after which we suspend its use for some days, and then resume it. Preparations of iodine are more efficacious in scrofulous than in other cases; and the same may be said of another powerful remedy—cod-liver oil, the value of which, in the treatment of articular diseases, has been fully established within the last few years. The cod-liver oil is to be preferred to iodine in all scrofulous cases, and in those in which the general health is much deteriorated. M. Leuret thinks that it has more effect in cases where the disease begins in the bones, than when the synovial membrane is primarily attacked. However this may be, there is no single remedy from which so much benefit may be expected in protracted cases of the disease as from cod-liver oil. Like iodine, its action seems to be somewhat transient; and hence we should administer it for many months together. Sir B. Brodie strongly recommends the preparations of iron in the scrofulous form, and the syrup of iodide of iron will be found an excellent preparation in these cases. The other general remedies are chiefly such as act by improving the patient's health and invigorating his constitution.

[In cases where reparation is going on, your chief object will be to preserve as much motion in the limb as possible, taking the greatest care that your attempts in this direction do not excite inflammation.]

In some cases, the joint remains nearly stiff, from contraction of muscles and fibrous organizations outside the joint, without anchylosis. Here we must not defer employing the necessary means too long, or we run the risk of seeing the joint become anchylosed from long inaction. Frictions with the hand, and douches, are very useful in removing the stiffness now alluded to. But passive motion must also be employed; and the most important question we have to settle is—When may passive motion be commenced without danger? The safest answer we can give is this: Do not commence passive or active motion so long as movement of the joint occasions any pain. The first movement should be made by the surgeon himself, who will observe the effect produced, and after some time the patient may be allowed to move the joint himself. It may, however, happen that the contraction of the muscles is so great as to require means of a special kind to overcome it. I mentioned how they were sometimes converted into fibrous cords, while the tendons were bound down by firm adhesions to the surrounding tissues. Here, if you can ascertain, by examination of the joint, that osseous anchylosis has not taken place, benefit may often arise from dividing the tendons of the contracted muscles. The division should be effected by subcutaneous incision—that is to say, by passing the point of the knife through the skin, and then dividing the tendon from within outwards, without cutting the integuments at the same time. Some of you may remember an operation of this kind which I performed in this hospital *on a boy* named Mortimer Smith, twelve years of age. He had laboured under

scrofulous disease of the knee, followed by great stiffness of the joint, from permanent contraction of the muscles. I divided the tendons of the biceps and semitendinosus and semimembranosus muscles in the way I have mentioned, and then applied one of M'Intyre's splints with a screw. The limb was extended by these means. In other cases, the stiffness and contraction may be overcome by mechanical apparatus, without division of the muscles. The most simple means is the screw-splint just mentioned. This treatment is only applicable to cases in which the rigidity and flexion of the joint are chiefly produced by muscular contraction. In many cases, where disease of the knee has been neglected, or when, from its natural progress, certain changes have taken place within the joint, the treatment now spoken of will be unavailing. You are aware that the complaint has often a tendency to terminate in false anchylosis. Here the limb presents various degrees of flexion, from an obtuse to a right angle; sometimes, indeed, the heel is drawn up so far as almost to touch the buttock. This, of course, cannot take place without considerable retraction of the flexor muscles. But this is not all; the tendons of the contracted muscles become fixed to the subjacent parts by chronic inflammation; fibrous bands of new formation increase the deformity; the tendinous sheaths of the muscles contract, become thick, and are also bound down; in short, the various tissues around the joint are united into firm, resisting masses, and the limb is almost as firmly fixed in its abnormal position as if the opposite surfaces of the bones were united together. In this country, we are not in the habit of interfering with unpromising cases of this kind, but Dieffenbach and other German surgeons have shown that they are not altogether beyond the resources of our art. The method which they adopt is as follows:—The patient is placed on his belly on a table, the pelvis is firmly fixed by two assistants, another holds the sound limb on one side, while a fourth seizes the lower part of the diseased limb, and keeps the parts to be divided in a state of tension. Subcutaneous division of the contracted and adherent tendons, &c., is now effected. The operator commences with the tendon which appears most prominent and tense. This is sometimes the tendon of the biceps, sometimes of the semimembranosus or semitendinosus muscles. The operation itself is quick, and very easily performed: the skin is raised, the tenotome is passed underneath the tendon, and this latter is divided from within outwards. The most convenient point for dividing the tendons is about an inch above the angle formed by the flexed joint. When the cutting instrument has been withdrawn, some force is used to extend the joint; this makes certain tendinous bands salient and tense. The operation is now repeated, extension employed as before, and the several bands are divided so long as they oppose any considerable resistance to the extension of the limb. A strong, folded napkin is then passed around the knee, and held by the assistants in such a way as to prevent laceration of the integuments. This done, the surgeon flexes and extends the limb with a certain degree of force, in order to lacerate any cellular adhesions which may have been formed; if any resistance is offered by tense fibrous bands, these are likewise divided in the manner described. This plan has been adopted here by my colleague Mr. Ure, with complete success. The after-treatment is simple: water-dressing is applied over the points where the cutting instrument has been introduced, the knee is enveloped with lint, the whole limb is covered with a flannel bandage, and a strong concave splint, also lined with flannel, is applied from the middle of the thigh to the middle of the leg. Care is taken to fill the space between the ham and splint with pads of lint, and the splint is kept firmly in its place by a bandage, which is particularly well secured above and below the patella. If the patient do not suffer much, the splint is allowed to remain on for several weeks. When any tendency to retraction manifests itself during the after-treatment, the screw-splint must be applied, and extension made from time to time. This may appear to you a severe operation, but it is much less so, in reality, than it would seem to be from the description of it.

True anchylosis of the joint is also frequently observed after chronic disease of the knee. If the surgeon has taken care during the course of the disease to bring the limb into a good position, the patient preserves a tolerably good use of the limb, which is nearly straight; but in many cases the limb is bent, and the patella adheres to the femur, while a certain degree of motion exists between this bone and the tibia. In these cases, and likewise in those where more or less osseous

union has taken place between the opposite surfaces of the joint, nothing can be done for the relief of the patient; for I never would advise you to imitate the barbarous practice of M. Louvrier, and endeavour to straighten the limb suddenly by violent extensions. It is true that the effects of this violence are often much less than one would be disposed to conclude that they should be; but death has been the immediate result in some cases, while even in the most favourable the result has been little better than if the patient wore a wooden leg.

Another effect of the disease is secondary dislocation of the tibia. When this occurs, an attempt may be made to keep the bone in its place by means of splints. It is often easy to reduce the displacement, but it is extremely difficult to keep the head of the tibia from slipping back behind the external condyle of the femur. This tendency depends on the destruction of the cartilages and the end of the femur, and no effectual means of counteracting it have been discovered.

The treatment of the third stage of chronic disease of the knee is entirely palliative. I have described to you the various symptoms of a secondary nature, which may appear when the constitution of the patient begins to suffer under the continuance of incurable disease. An operation is now the only resource left, and the only questions you have to decide on are, whether amputation or excision of the joint should be selected, and at what time the operation should be performed. The latter is a most important point, and one that will require very serious deliberation. We have, on the one hand, to avoid the error of removing a limb which might perhaps be saved; on the other, we have to avoid the still more serious error of sacrificing the patient's life in an attempt to preserve his limb. The general rule which I would lay down is this: If the case has been under treatment for some time, and you are convinced that your remedies have failed to check it, then operate as soon as the general health begins to suffer from the progress of the disease. If the case has not come under your care until a late period, or if the constitutional symptoms do not make much progress, the effects of treatment may be tried for a short time, the operation being held in reserve as a last resource. In scrofulous cases the rule now laid down will admit of some relaxation; although these cases are slow, unpromising in appearance, and often attended with considerable disorganization of the joint, yet experience proves that recoveries may take place under very discouraging circumstances. The general health of scrofulous patients is visibly improved by remedies and hygienic means; any amelioration of the health soon acts on the local disease, and hence operations on scrofulous patients of tender age may be deferred for a longer time than in other cases; in a word, until the effect of the disease on the general health is such as to render an operation indispensable. I have also insisted on the necessity of not deferring an operation too long, from remarking a circumstance connected with operations for articular disease, which appears to have escaped the notice of all writers on diseases of the joints. Numbers of patients, whose limbs have been amputated or whose joints have been excised from chronic articular disease, die of purulent infection of the blood.

Before concluding the subject of treatment, it remains for me to notice excision of the knee-joint as a substitute for amputation of the thigh. Is excision of the ends of the bones to be recommended as a general rule? Is excision admissible under any circumstances, or should it be rejected for the knee-joint? If admissible, what are the particular circumstances in any given case which should lead us to prefer it to amputation? in other respects, what are the special indications of excision?—These are interesting questions which I should like to discuss, but to do justice to them at the conclusion of a long lecture would be impossible. Some surgeons affirm that we should always prefer excision to amputation; others, again, condemn excision. Mr. Syme, in a recent lecture, which has excited a great deal of discussion in the medical world here, argues with considerable force against the propriety of our ever excising the knee-joint. Although I agree with Mr. Syme in a great deal that he has said, yet I cannot go so far as to condemn this operation altogether. It has its defects, but the preservation of a limb is often an object, even though the limb may not turn out a very serviceable one. The principal objections which may be raised against excision of the knee-joint are two: in the first place, a considerable time is required to ensure a cure, and effect the complete healing of the wound (the period of after-treatment, in fact,

generally extending over six and twelve or eighteen months); in the second place, the limb, though preserved, is sometimes of little or no use to the patient. Hence the chief indications of the operations are to be derived from the general condition of the patient and from the state of the joint. In order that excision becomes admissible, the general health of the patient must not have suffered much from the disease of the joint; he must be in a condition to bear up against the long confinement and other influences to which a protracted convalescence must expose him. On the other hand, the local disease must not have proceeded too far, or destroyed the soft and hard tissues of the joint in too extensive a manner. If this be the case, and, above all, if any considerable portion of the femur be implicated, the extensive removal of parts will not only require a very protracted after-treatment, but will leave a limb of little or no use whatever to the patient. These remarks, however, rather apply to the indications and contra-indications of the operation, and not to its results, when it is performed at a proper time and in a scientific manner. The results of the operation, thus performed, seem to be more favourable than has been commonly supposed, and they have been very clearly set forth in an excellent memoir recently published by Mr. Butcher, of Mercers' Hospital, Dublin. Mr. Butcher has collected no less than thirty-one cases of excision of the knee-joint performed between July, 1850, and December, 1854. Of these thirty-one operations, five terminated in death; in sixteen the result is stated to have been perfect use of the limb; one produced an useful limb; the result of one is given as encouraging; one was followed by recovery, one by perfect anchylosis, while six cases were under treatment and recovering at the time of Mr. Butcher's publication. These results are certainly very encouraging, and Mr. Butcher deserves much praise for the industry which he has shown in collecting the cases, and for his careful investigation of them. I would strongly recommend his paper to you, as likewise the reports on excision of diseased joints contained in the last two volumes of 'The Lancet.' Next to seeing cases yourself, the greatest advantage will be derived from meditating on these faithful portraits of disease and practice.—*Lancet, Aug.* 25, *and Sep.* 1, *pp.* 161, 183.

47.—HYSTERICAL AFFECTION OF THE HIP-JOINT.

By William Coulson, Esq. Surgeon to St. Mary's Hospital.

The following case, the subject of which was a patient under the care of Mr. Coulson, at St. Mary's Hospital, presents a tolerably well-marked instance of that affection which is occasionally so troublesome to the surgeon, known under the name of hysterical joint, supposing at least that the diagnosis made in this case was, as there is reason to believe, correct. This affection is not so frequently, perhaps, met with in hospital practice as in private, females belonging to the richer and consequently the more idle portions of the community being most liable to it, in common with the other affections incidental to hysterical subjects. There does not seem to be a great amount of difficulty in diagnosticating the presence of hysterical affection of a joint, if the history be duly inquired into, and the condition of the joint and limb affected carefully scrutinized. The symptoms, as is well known, are severe pain in the joint, now and then a slight puffy swelling around, together with evidence of hysteria, &c. The character of the pain is important. It is more severe than in inflammatory affections. Pressure on the joint is productive of pain when made at almost any point, and the pain produced is even greater when slight pressure is made than when a greater degree of force is used. Now it often happens that in true inflammatory disease of a joint it is found necessary to examine carefully before the surgeon finds a spot which is painful on pressure, this observation being of course intended to apply to inflammatory affections of a chronic nature, with which alone the hysterical condition is liable to be confounded. The course of the affection is peculiar, and a very important point in the diagnosis. The joint affected remains in much the same condition for a considerable time. Months and even years may elapse without any change occurring for the worse. This is hardly possible in the case of a joint in which true disease is progressively extending. One additional point observed by

Mr. Coulson some time since is the fact that the limb affected is liable to frequent alternations of heat and cold, this change of temperature being not only obvious to the patient but to the observer also. In the case about to be detailed this circumstance was noticed, and together with it a condition pointed out by Sir B. Brodie, viz., a loss of sensibility of the skin covering a portion of the leg. These elements for the diagnosis of hysterical joint are of value, for their recognition may prove of great service in elucidating the nature of a case involved by particular causes in obscurity. It is singular enough that the joints most frequently presenting the hysterical affection should be also those in which chronic, inflammatory, and other affections are most commonly observed.

M. A. Q., aged 24, single, by occupation a cook, was admitted into St. Mary's Hospital, October 6, 1854. Her previous health is described as good, on the whole. Five years ago she had a fall, which injured the right knee to a slight extent, but of this she soon recovered, and felt no further unpleasant effects. Six weeks before her admission into the hospital she had an attack of cholera. The catamenia commenced at a late period, at the age of 21, and have never been very regular, the period often passing by without its occurrence. Her family are tolerably healthy: one sister died of consumption. The patient is a healthy-looking young woman.

The patient ascribes her complaint to the fall on the right knee five years ago. She fancies that the right hip has been larger than the other for the last twelve months. Four months ago the right knee was swollen and painful, and leeches were applied.

Present state.—She is able to walk, but walks lame, and the motion of the right leg and knee gives great pain, the pain commencing at the knee, and extending up to the hip-joint. The knee is not at all swollen, but tender on pressure; there is no apparent enlargement of the parts around the hip-joint; pressure is painful all over it. There is pretty constant pain in the hip-joint, and this has been present for the last three weeks. She complains of a want of feeling at the inner ankle and over the foot, on the dorsum as well as the sole. The parts thus insensible to touch are also colder to the feel than the corresponding surfaces of the other leg. This insensibility and lowering of temperature are evanescent, coming suddenly, lasting a few minutes, and then disappearing as suddenly as it came. There is no distortion, lengthening, or shortening of the limb.

A belladonna plaster was applied round the hip-joint, and an ounce of quinine mixture prescribed thrice a-day.

October 9th.—The pain was more severe, and three grains of Dover's powder were added to each dose of the mixture. On the 11th the quinine mixture was omitted, and a combination of tincture of iron and hyoscyamus substituted.

October 16th.—The hysterical and nervous condition of the patient being more completely recognized, a draught of tincture of valerian, with tincture of hyoscyamus and camphor mixture, was ordered three times a day.

October 19th.—The knee is now the most painful part. The condition of the leg remains much the same. The alternate elevation and depression of temperature of the affected limb is still observed. A belladonna plaster to be applied to the knee.

During the remainder of the patient's stay in the hospital, matters progressively assumed a more favourable aspect. The medicines given were occasionally changed, but for the most part consisted of the remedies usually found most advantageous in hysterical cases. The patient was discharged from the hospital November 10th, at which time she was able to walk quite readily; there was no lameness, no distortion of the limb, but the patient seemed to have a too great tendency to make much of trifling ailments.—*Med. Times and Gazette, July* 7, 1855, *p.* 19.

48.—ON DISLOCATIONS OF THE HUMERUS.

By Dr. Frank H. Hamilton, Buffalo.

[Of a great number of cases recorded by the author, two-thirds were cases of *dislocation of the head* downwards, and the remainder forwards. About one-fourth

of the whole number were reduced within a few hours of the accident, the remainder at periods varying from one day to eight weeks. He says that]

The procedure adopted by myself in the reduction of recent cases has been much varied in different cases, and sometimes in the same case, but that the reduction has been generally effected while pulling upon the arm outwards, and a little downwards from the line of the body. In some cases the extension has also been made successfully at right angles with the line of the body, and in others directly upwards and over the head, and in others manipulation alone, without extension, has been employed. But whatever direction has been adopted in the extension, I have never omitted to make a direct application of the counter force to the scapula, through the acromion process, which I regard as vastly more effective than any counter force applied to the axilla, and to which, indeed, I have generally observed that the successful result was due. The necessity of avoiding the axillary margin with the heel, or the counter extending force, is well enough understood, but I doubt whether surgeons have sufficiently appreciated the difficulty of doing this, or indeed the complete impossibility of making here any effective pressure against the scapula, even though the heel shuns the muscular margin, and buries itself however deeply in the axilla. A moment's attentive consideration must convince us that by this procedure the scapula may be lifted outward from the body, but not certainly carried backwards in a direction opposed to the extension. If, therefore, the heel in the axilla serves any useful purpose, it must be as a fulcrum; it may also serve some useful purpose as a mode by which both the patient and the operator may be steadied while extension is being made at the forearm.

It is against the end of the acromion process, therefore, that I have always sought to make counter-extension when pulling downwards or outwards, and against the top of the scapula when pulling upwards.

The usual appliances for confining the scapula, such as a band across the acromion process, or a sheet with a fenestrum through which the arm is thrust, &c., I have found generally unreliable, and I have preferred the fingers or the hands of a stout assistant, or my own foot.

In one case only have I resorted to the practice first suggested by Nathan Smith, of making the counter-extension from the opposite arm. The reduction was accomplished easily. I have no doubt of the correctness of the principle upon which the suggestion is based.

In several instances my attention has been called to a remarkable fulness in front of the head of the bone, which has continued for many months after the reduction has been effected, the patients having in some cases applied to me to know whether this did not indicate that the shoulder was not properly set, since it seems, upon casual inspection, like a partial forward displacement of the head of the bone, and which seeming is the more conclusive, because there is often a corresponding flatness or depression behind. Yet a careful examination has proven that this fulness is not due in any degree to the position of the head of the bone from non-reduction of the bone or laceration of its capsule. It is equally present where the elbow is carried forwards, and when consequently the head of the bone is thrown back in its socket, as when the elbow is carried back. It has been observed as often also, as will be seen by reference to the cases, where the luxation has been downwards into the axilla as when it has been forwards. While I am not prepared fully to explain the cause of this phenomenon, I am disposed to regard it as a purely *muscular* fulness, and as having relation only to the injury which the pectoralis major, or perhaps some portion of the deltoid muscle, has sustained.

I am certain that muscular contraction and rigidity is the most frequent cause of the complete anchylosis, as well as of the minor embarrassments to freedom of motion, which so often ensue upon those accidents, and which I would term *muscular anchylosis*, to distinguish it from those few cases of anchylosis which result from fibrous adhesion about the joint. In but few instances immediately after the reduction has the patient been able to lift the arm by his own volition to a right angle with the body, yet in every instance it could be lifted, without causing much if any pain, by the surgeon. The muscles, either by the displacement or in consequence of the means employed to reduce the bone, have suffered

serious injury, and the present paralysis, where indeed it is not due to lesion of some nerve, must in some measure foreshadow the future contraction and rigidity.

In cases 27 and 28 of unreduced downward luxations the patients could carry the elbow back much further than they could forwards; and in case of a forwards luxation the same thing was observed, while in four cases a general muscular anchylosis occurred, which lasted many months, and during which time motions of the joint were nearly or entirely lost, the scapula moving always with the humerus. In each case, however, after a period longer or shorter, the motions of the joint gradually returned.

The application which I propose to make of these facts is, that the head of the humerus may be displaced after a reduction has once been well accomplished, by the mere force of a gradual muscular contraction, steady and long continued, and without the aid of extreme violence, or the intervention of sudden spasm; and that in case of an unreduced shoulder, we are not forced to conclude that it has never been properly reduced, because it cannot be shown that any new accident has occurred, or that the patient has had spasms of the muscles, or that he is subject to such dislocations from trivial causes, or indeed although the subject was not himself conscious of a sudden escape of the bone, since in such a case, the bone, stayed and supported on each side by muscles in a state of extreme rigidity, would move from its socket by the slightly preponderating action of one set, so quietly and silently as not to be observed.

My attention has been called also to the subject of the sound or tactile sensation produced in the reduction of this bone, and especially in reference to the medico-legal question whether those present in the room, and not assisting in the operation, could have heard the reduction, and thus have become more competent to testify to the fact.

It was upon this point, so material to both parties, that medical gentlemen were not agreed in the case of —— *v.* the late Professor Horace Webster.

I find that in most cases there was a tactile sensation palpable to the operator and his assistants, and not always very easily distinguished from the sensation of audition, while in several cases there was an audible snap, heard distinctly in all parts of the room, but never was the snap audible where anæsthetics or mechanical appliances were used. Under these latter circumstances a snap or a sudden slipping may occasionally be felt, but never heard.—*Transactions of the State Med. Society of New York, Feb.* 1855, *p.* 46.

49.—ON DISLOCATIONS OF THE ULNA.

By Dr. Frank H. Hamilton, Buffalo.

I do not remember ever to have seen a dislocation of the upper end of the ulna without, at the same time, a dislocation of the radius. Nothing is more common, however, than a diastasis of the ulna and radius at their lower ends, or perhaps quite as frequently it may be regarded as a diastasis of the ulna and carpal bones through a rupture of the internal lateral ligament, in consequence of which the styloid process of the ulna is made to project slightly outwards, and occasionally forwards or backwards. This partial separation occurs, I believe, in all cases of fracture of the lower end of the radius, accompanied with displacement of the fragments, and in most cases where no such displacement exists. In 24 cases of this fracture, recorded by me, no exception to this rule is mentioned. In some instances the projection is, however, very trivial, while in others it is very striking.

The same thing is present after the majority of severe sprains of the wrist-joint, and it is not unfrequently observed in both of the wrists of old persons; occasionally also it is observed in those who are younger, but of a lax and feeble habit, with whom it exists not as a consequence of any accident, but only of that preternatural laxity of the capsular and ligamentous structures, which may produce equally a splaying of the foot or a yielding and diastasis of any of the articulations.

Accompanying the displacement there is also unusual mobility of the lower end *of the ulna, so* that by moderate pressure the deformity may be sensibly dimi-

nished. But I have never seen any permanent good derived from either splints, or bandages, or compresses, or from any other mechanical means which have been employed to retain the bone in place. On removal of the pressure the deformity has always returned, and I think always in the same degree as before.—*Ibid, p. 56.*

50.—ON DISLOCATIONS OF THE RADIUS.

By Dr. Frank H. Hamilton, Buffalo.

[Of thirteen cases recorded, in eleven the head of the radius was dislocated forwards, and in only two cases backwards. The experience of the author differs from that of many surgeons who have met with dislocations backwards much more frequently than dislocations forwards.]

Of the whole number of dislocations, backwards and forwards, of the head of the radius, seven were reduced immediately, or soon after the accident, yet only five remained reduced. One case was reluxated by an attempt on the part of the father to straighten the arm; and another case was accompanied with a fracture which would not permit it to remain in place. Those which remained reduced have resulted in useful and nearly perfect arms. Of the eight unreduced, one was reduced after eighteen months, and continued in place; four, I think, were not recognised as dislocations at the time of the accident, although examined by surgeons; two were recognised, but the surgeons failed to accomplish the reduction; the remaining two were reduced, but became again displaced.

These cases, so unfavourable to our art, since only six of thirteen are permanently reduced, demonstrate, however, not so much the difficulty of accomplishing the reduction in cases of simple dislocation, as the difficulty of making the diagnosis.

Surgeons are not agreed as to what is the usual position of the forearm, as to supination or pronation, in the dislocations of the head of the radius.

I have examined more especially, in reference to this question, the unreduced cases. In three cases of forwards luxation, the forearm was found forcibly proned; in one case it was in a condition midway between supination and pronation, and in no case of either recent or ancient luxation have I found it supined.

I found the arm proned also in one case of dislocation backwards.

I have seen but one dislocation of the lower end of the radius, and this was not complete.—*Ibid, p. 55.*

51.—ON DISLOCATIONS OF THE TIBIA.

By Dr. Frank H. Hamilton, Buffalo.

Of the seventeen dislocations of the tibia, the whole number occurred at the lower or distal end. Sixteen were dislocations inwards; the only remaining dislocation being a dislocation forwards. Of the sixteen inward dislocations, seven were complicated with fracture of the fibula, six with fracture of the fibula and malleolus internus, three were compound and complicated with fractures also. Two of the compound dislocations resulted in amputation and recovery; one was not amputated and the patient died. Of the fourteen dislocations which were complicated with fracture, but not compound, two remain unreduced, and only four are known to have left no permanent deformity.

No cases of dislocation of the lower end of the tibia outwards are recorded, since all displacements of the tibia outwards must involve a displacement of the fibula also in the same direction.

In every instance the dislocation of the tibia inwards has been accompanied with a fracture of either the fibula or of the malleolus internus, or of both. I think, however, I have seen two or three inward dislocations of the tibia without a fracture, but I find no record of such cases, nor does my memory enable me to recall them.

In classifying dislocations of the ankle, I have adopted the usual nomenclature, and have named all those dislocations in which the tibia projects inwards from the

foot, "inward dislocations of the tibia," yet I have some doubts as to the propriety of this appellation. This accident seems to me to have been in general rather a lateral *rotation* of the foot upon the lower articulating surfaces of the tibia and fibula. Of all the ginglimoid joints, the ankle approaches most nearly in form to a ball and socket joint, in consequence especially of the marked prolongations of the malleolus internus and externus. In other ginglimoid articulations lateral displacements are not unfrequent, but lateral rotation can scarcely by any accident occur. Here, however, the reverse holds true; lateral displacement is difficult, while lateral rotation is comparatively easy of accomplishment.

The majority of cases which occur involving a disturbance of the relative position of the ankle joint surfaces, are, I am satisfied, of this latter character, viz. lateral rotations within the capsule, and other than true dislocations; and although the restoration of the joint surfaces to position, is, in general, easily accomplished; yet, in consequence of either a fracture of the fibula, or malleolus internus, or of a rupture of the internal lateral ligaments, it will almost always happen that some deformity will remain. The fragments of the fibula will fall inwards towards the tibia, and the foot, unsupported by either its fibula or its internal ligaments, will incline perceptibly outwards. Nor can this be prevented, usually by any mechanical contrivance. Indeed, it would be easy to demonstrate, as I have often done to my pupils, that even Dupuytren's splint, usually employed in this accident, must fail of success in a great majority of cases; since the subsequent deformity is due, less to the fracture of the fibula and its consequent displacement, than to the loss of the internal ligaments, which loss nature can seldom fully repair. The whole apparatus of the joint has suffered greatly, and its form and functions, therefore, are not likely to be completely restored, whether the fibula has participated in the injury or not.

If, however, it were true that a fracture and displacement of the fibula is the sole, or essential cause of the subsequent deformity, it would still be found generally impracticable to avoid the maiming, since it would still remain impossible to lift the broken ends from the tibia, against which, or in the direction towards which, they are so prone to fall. Inversion of the foot does not accomplish it, nor have I ever been able to make anything but the most trivial impression upon the upper end of the lower fragment by pressure upon the lower extremity of the fibula.

I think too much confidence has been placed in the efficiency of "Dupuytren's splint." I believe, indeed, that this splint ought generally to be preferred as a means of support and retention after this accident; but I doubt whether it is able to accomplish more than a moiety of all that its illustrious inventor proposed.

In two, only, of all the cases reported, am I quite certain that there was an actual internal displacement of the tibia upon the astragalus, but even in these cases it seems probable that the displacement was not complete, but that a small portion of the articular surface of the tibia continued to rest upon the astragalus. In neither of these instances was reduction ever accomplished. The cause of this failure I am not able to explain.

If, therefore, we confine ourselves strictly to those cases in which it is certain that the internal dislocation was complete, there remains only the barren and unfortunate record of the three compound luxations; of which one died, and two recovered after amputation.—*Ibid, p.* 88.

52.—OBSERVATIONS ON DR. MARKOE'S REPORT OF CASES OF DISLOCATION OF THE FEMUR, TREATED BY MANIPULATION.

By Dr. W. W. Reid, Rochester, New York.

After describing in detail thirteen of the cases included in his report, Dr. Markoe proceeds to discuss the merits of the mode of operating by manipulation —the rationale of the process—its advantages and its *dangers*. On this latter subject, he observes:

"Every thing in our experience thus far seems to indicate, that this method of *reducing luxations* is as safe, if not safer, so far as the integrity of the joint and

its after usefulness is concerned, than reduction by forcible extension with the pulleys. The method, however, is not without its dangers, and these mainly arise from the immense amount of force which can be exercised by acting on the long arm of so powerful a lever as the whole limb, while the short arm has at most a length of three inches. By the *inconsiderate* or *misdirected* action of this lever force, one of three accidents 'might be produced,' viz.:—The muscles might be torn from their attachments—or the surrounding tissues might be lacerated and contused; or lastly," he observes, "it seems to me very possible that the neck of the bone might be broken by too violent abduction, forcing it against the side of the pelvis."

In reply to this it may be observed, that the whole manipulatory process, as proposed by me, is founded on the principle of relaxing and relieving muscles that are already put upon the stretch. This mode of operating is based upon the discovery, or supposed discovery, of the fact, that the distended or stretched condition of the abductor and rotator muscles constitute the chief impediment to reduction of the dislocation in question, and not the contraction of the extensor and flexor muscles as heretofore taught in all works on Surgery; but that extension applied to the limb by pulleys or otherwise, only increases the distension of the aforesaid abductors and rotators, and consequently, increases the difficulties of reduction, while it greatly enhances the danger of rupturing said muscles, or of fracturing the neck of the femur. But the mode of manipulating as proposed and employed by me, most perfectly avoids all these difficulties and dangers. It is true, that by "*inconsiderate and misdirected action*," accidents may happen. But the same is true of the simplest operations in surgery—even of phlebotomy.

From the experiments and observations which I had made, I had deduced the following propositions and rule:

"1. The chief impediment in the reduction of dislocations is the indirect action of muscles put upon the stretch, by the malposition of the dislocated bone, and not in the contraction of the muscles that are shortened [as heretofore taught].

"2. That muscles are capable of so little extension, beyond their normal length, without hazard of rupture, that no attempt should be made to stretch them further, in order to reduce a dislocation, if it can possibly be avoided.

"3. The general rule for reducing dislocations should be, that the limb or bone should be carried, flexed, or drawn in that direction which will relax the distended muscles.

"This general rule will apply to all luxations, but especially to the several varieties that pertain to the hip-joint."

But Dr. Markoe does in fact obviate his own objection, and substantially confirms my own experience, and the principle involved in the foregoing propositions and general rule. He says, "as far as my recollection serves me, and I myself assisted in almost every case reported, *we never have accomplished anything by proceeding in a direction where great force was required* to continue the movement, *but have always succeeded by finding a direction* in which the mere continuance of the movement *without force* has brought the head into the proper position. Hence the importance of studying the anatomy of dislocations—of every kind of dislocation to which each joint is subject, before we proceed to operate by mere brute or mechanical force, regardless of the condition or action of the muscles. Otherwise, any house-carpenter or ship-builder, who knows how to apply a tackle or pulley, might operate just as well as a surgeon. So too, before we operate by manipulation, it is equally important to understand the direction and action of the *dislocated muscles*, as well as the position of the bone, unless we would stultify ourselves, and proceed empirically and hap-hazard, "by making bending movements of the limb in every possible direction," as was recommended by Dorsey.

The method of manipulating, as employed and described by me in the article published in the 'Buffalo Medical Journal' for August, 1851, and again in the proceedings of the State Medical Society, February, 1852, was as follows:—"Let the operator stand or kneel on the injured side, seize the ankle with one hand, the knee with the other, then flex the leg on the thigh, next strongly abduct it, carrying it over the sound one, and at the same time upward over the pelvis, by a kind of semicircular sweep, as high as the umbilicus; then abduct the knee

gently, turn the toes outwards, the heel inwards, *and carry the foot across the opposite and sound limb, making gentle oscillations of* THE THIGH, when the head of the bone will slip into its socket."

"Gentle oscillations of *the thigh*," while the head of the bone is poised upon a mere point, as before described, and while the foot and leg are directed towards and across the opposite limb, and steadily held in that position, will be found, I apprehend, to be "a procedure that varies [not] a little" from that recommended by Dr. Markoe, viz., a rocking motion of *the leg*, while the thigh is being brought to the straight position *strongly abducted.*

When the thigh is flexed on the trunk, say at an angle of 45°, and is gently abducted, and the head of the bone thus brought close to the lower edge of the acetabulum, if, while gentle oscillations of the thigh are made at the knee, it—the head—does not immediately enter the socket, the knee should be alternately elevated and depressed, thus varying the angle of the thigh. If, by this manœuvre, alternated with the before mentioned oscillating or lateral movement, the head does not enter, we should then cease all motion, and hold the thigh and leg perfectly quiet, for a short period, keeping the former still slightly abducted: and thus give the irritated muscles, ligaments, and tissues, time to become quiescent, and to accommodate themselves to the new position of the bone. The foot and leg must be kept still also, and firmly directed towards the opposite thigh, for, if we relax or carry it outward, we shall roll the head of the femur away from its resting place and proximity to the acetabulum, and permit, if not provoke the muscles, as already described, to draw it downward into the foramen ovale or backward into the ischiatic notch or dorsum ilii. After a short time we may repeat our attempts as above described, and in all suitable cases—that is—cases of dislocation on the dorsum or into the ischiatic notch, and of not over four to six weeks' standing, we may confidently anticipate a speedy and favourable issue.

The accidents which occurred during the manipulations of Dr. Markoe and his coadjutors, with the exception of one, in Case 14, were by no means serious; they were in fact discoveries, and afford us valuable lessons and suggestions. It is certainly something new in the annals of surgery, that a surgeon can, at his pleasure, convert any one of the four kinds of dislocation of the hip-joint into any one of another kind. With this additional knowledge, which furnishes us with a choice of position from which to attempt reduction, or, if one fail, to try another, it seems to me, that these heretofore most formidable luxations of the femur may hereafter become, when the modus operandi by manipulation is better understood, quite trivial affairs, and be reduced with as much if not greater facility, than now obtains in reduction of the shoulder-joint.

I feel unwilling to dismiss this subject, without adverting once more to the inapplicability and detrimental action of direct traction on the femur by pulleys, Jarvis' Adjuster, or any other power, for the purpose of reduction of the hip-joint.

I repeat, that traction on the femur is force misapplied—is unphilosophical and absurd, contra-indicated by the anatomy of the dislocated joint, and by the plainest laws of mechanics. This I have attempted to demonstrate in former papers, and shall not dwell on it now, but simply observe, that it seems to me impossible for any one, having the slightest knowledge of anatomy and of mechanical philosophy, to fail to perceive, that extension of the thigh, when dislocated in the dorsum or into the ischiatic notch, must powerfully abduct it, and therefore cause the already distended muscles, especially the obturator externus, to bind the head of the bone more firmly behind the brim of the acetabulum, and thereby prevent its mounting over it, except at the expense of the rupture of muscles, or ligaments, or both. The amount of power exerted by pulleys, Jarvis' Adjuster, and similar machines, is unknown. It must be very great, but how great has never been carefully estimated.

The impediments to reduction by direct extension of the femur, I have heretofore considered to lie chiefly in the resistance of the six rotator and abductor muscles, which are put upon the stretch, and which are incapable of any further extension without danger of rupture. From the experiments which I had made on muscles, I had drawn the conclusion that they were incapable of any practicable *degree of elongation beyond* their normal lengths, without rupturing them more or

less. Since the publication of these views, Professor E. M. Moore informs me that he has been in the practice, during his terms of lecturing on surgery, of exhibiting before the students, on the cadaver, both modes of operation—that is, by extension and by flexion or manipulation—that one of his illustrations consists in removing all the muscles above the hip-joint, then puncturing the capsular ligament, and dislocating the bone on the dorsum. He says, when this is done, the limb always assumes the same position of *abduction* and *inversion* that it does in the living or dead subject, when the muscles are in situ and entire. Having dislocated the bone as above described, he now attempts to reduce, by extension made in the manner recommended by all surgical writers. The extending cord is put into the hands of one or more students, and Dr. Moore says he has always found that the strength of *two men* was necessary to bring the bone into place, although there was nothing to prevent it but the remains of the untorn portion of the capsular ligament, which is stretched across the acetabulum and binds the bone behind its rim. While on the other hand, when reduction was effected by manipulation, no more force was required than was sufficient to support the weight of the limb, to flex and rotate it gently while the head was resting on the edge of the acetabulum; to do all which required much less than the whole strength of one man. But he observes, that the head never enters the socket, even under these favourable circumstances, without tearing up another portion, more or less, of the capsular ligament from its attachment at the edge of the acetabulum. He states, moreover, a fact, which I had myself before observed, that when the muscles about the joint are entire, if the femur is flexed on the trunk and abducted, the glutei muscles are stretched, and then their broad tendons compress the trochanter, and powerfully assist rotation and abduction, to urge the head of the bone into the socket; very much as might be done by the hands, if placed over the trochanter, but much more efficiently. But if the thigh is brought down to a right angle or lower, the tendons of the glutei are relaxed, and we thereby lose all the advantage which they would otherwise afford us—another cogent reason for not bringing down the limb towards the straight position, before the head enters the socket.

The experiments which I had made for the purpose of determining the extensibility of muscles, were made on those of sheep, which had been killed from one to two days—that is, on the dead, but still fresh muscle. Soon after I had made known the results and my views, Drs. Bly and Moore performed a series of experiments on the living muscle, viz. of wethers two years old. The animal was suspended in strong canvass cloth, with one fore leg projecting through a hole, rendered unyielding by firmly binding or hemming the edge. The skin was removed from the knee, for the space of six inches. The ligaments of the joint only were divided, the muscles being left intact; weights were suspended from the foot, and added by degrees, fourteen pounds at a time. Four different experiments were made on as many different animals, with very nearly the same results. The following tabular view of the fourth experiment will explain the whole—

No. of lbs.	32 scds. in.	No. of lbs.	32 scds. in.	Remarks.
9	2	163	13*	The second and fourth columns show the distances in thirty-two second parts of an inch, to which the articulating surfaces were separated on each addition of fourteen lbs.
23	4	177	14	
37	5	201	14*	
51	6	215	15	
65	7	229	15*	
79	8	243	16	
93	9	257	16*	
107	10	271	17	
121	11	285	17*	
135	12	299	18	
149	13	313	18*	
		327	18½	

* *Thirty-two seconds of* an inch, or about five-eighths.

After two hundred and forty-three pounds had been added, the whole were removed, when the parts regained their normal position. After these had been replaced, and more added, sixty pounds were removed at a time, the parts always regaining what they had lost by the addition of that number of pounds. But when three hundred and twenty-seven had been reached, the leg of the living sheep was completely torn off at the shoulder-joint. This happened in every instance, with a weight not varying over fifteen pounds from three hundred and thirty, being sometimes less, sometimes greater. This rupture always took place at the shoulder, never at the knee, although the ligaments of the latter were divided, while those of the former were entire. From these experiments it will be seen that the living muscles were extended about five-eighths of an inch beyond their normal length, and regained or contracted to their original position. But Dr. Bly acknowledges that the joint was not very firm; that the muscles seemed rather lax. The results of his experiments, compared with those of mine, are so diametrically opposite, it is evident that one or the other must be in error—that, contrary to my conclusions, muscles must be elastic, and capable of extension beyond their normal length—and if so, then the distended muscles of a dislocation constitute, not the primary but the secondary impediments to reduction, while the ligaments constitute the primary and chief. This subject needs further investigation by others, who have more ample facilities.

One word on the use of ether and chloroform in reduction of luxations. Believing, as I do, that muscles are the principal agents in producing dislocations, while the blow received is but secondary—that is, that the muscles being in a state of active contraction by force of the will, at that instant a sudden blow, taking the will by surprise, is received on the limb, and propelling it in the same direction which the contracting muscles are giving it, the bone is thrown out of place before the opposing muscles have time to resist this new impulse. I am therefore constrained to believe, also, that muscles may be made, and are, in fact, our most efficient assistants in reducing by manipulation. Consequently "etherization to the extent of complete relaxation," instead of being an advantage, is a detriment, in just so far as it prevents the contraction of the muscles required to replace the bone. Might not this have been one of the causes of so many unsuccessful attempts at reduction, which are narrated in the report of Dr. Markoe? Etherization was employed in every case reported as occurring in the Hospital, except No. 5, and that was the only one which was reduced without difficulty or mishap. The pain produced by manipulation is too trifling to require an anæsthetic of any kind. These remarks, of course, are not intended to apply to cases of luxations complicated with other severe or painful injuries, nor to reduction by forcible traction or mechanical means.

Before concluding, I beg permission to express my acknowledgments to the New York surgeons, for the complimentary manner in which they have been pleased to speak of my efforts to introduce to the notice of the profession, this mode of reducing dislocation of the femur. It is not only gratifying to me, but honourable in them, and will doubtless be duly appreciated by the profession generally, that they have, in the spirit of true philosophy, undertaken an investigation, which the importance of the subject demanded, and have thus, by their more ample facilities and experience, put to the test, and in a good degree have established, the merits and advantages of this mode of operating. Especially is it honourable in them, when it is evident, that in certain quarters the whole thing is ignored, and there is manifested a spirit of conservatism quite as absurd as that of some forms of radicalism. And that, too, where the operators could not plead ignorance of the facts and proofs that have been adduced in favour of the method. With such men nothing good can come out of Nazareth. The world composed of such only would remain for ever *in statu quo*. The discovery of new truths, advancement in science, and progress in the arts, would come to an end. "The wisdom of the world would die with them."—*N. Y. Journal of Medicine, July*, 1855, *p.* 56.

58.—DISLOCATIONS OF THE HEAD OF THE FEMUR REDUCED BY MANUAL EXTENSION, FLEXION, AND ROTATION.

By JOHN BIRKETT, Esq., Assistant Surgeon to Guy's Hospital.

Dr. Reid, of New York, gives an American plan of reduction in cases of dislocation of the head of the thigh-bone; and Dr. Markoe, one of the attending surgeons of the chief New York Hospital, has recently furnished nine cases of his own, and three others treated by New York surgeons, twelve cases in all, of which three were dislocations into the foramen ovale, eight (five of his own and three others) on the dorsum ilii, and one into the ischiatic notch. We do not hear of the luxation on the horizontal branch of the os pubis, or the still more rare accident behind the tuberosity of the ischium. The method of the American surgeons is much more violent, and not more effective, than that adopted at Guy's and at some other London hospitals, the displacement being remedied according to the former, "by flexing the leg on the thigh, carrying the thigh over the sound one, upwards over the pelvis, as high as the umbilicus, and then abducting and rotating it." A peculiar "rocking motion" is much dwelt on, however, by our Transatlantic brethren, as necessary to induce the head of the bone to regain or creep back to its normal position,—a plan spoken of by Colombat,—an old modification of the present methods by manipulation is also now highly prized by some surgeons; but we doubt if, under chloroform, the patient could be so well adapted to it as to the plan of Mr. Cock and Mr. Birkett at Guy's, which seems to answer all purposes. The principle, however, of flexion and extension is the same. The patient with dislocated hip stands at a table, according to Colombat, then leans forward with his chest upon the table, while the surgeon stands behind and bends the knee with one hand, manipulating at the same time and encouraging the various movements of the hip-joint, in accordance with the plan by chloroform in Mr. Cock's cases, making gradual extension by pulling downwards. By this modification of the older plan, assisted by the gravity of the limb in place of chloroform, the head of the bone may be dislodged, and its reduction safely accomplished; perhaps this method is worthy of being recollected where the patient will not bear chloroform. One of the American cases, reduced by Reid's plan, presented the curious characteristic of the head of the bone "seeming to move about more freely in all directions," and dislocated in several ways at the will of the patient; in another of the cases the luxation occurred into the ischiatic notch, the limb shortened as usual; but the effect of the treatment was to throw the head of the bone on the obturator foramen, between which points the limb could be got to play backwards and forwards, not into the socket, but under the rim of the acetabulum.

With these few preliminary remarks, as the subject is one of an eminently practical nature, and as the plan seems to answer in old cases of even several weeks' standing, we give the following as various and well-marked dislocations of the head of the thigh-bone at Guy's, reduced, under the influence of chloroform, by manual extension, flexion, and rotation. It is often asked why dislocation of the thigh is so frequent on the dorsum ilii and ischiatic notch. This is caused by the strong ileo-femoral or accessory ligament we spoke of before in Mr. Cock's case, preventing dislocation in front, and all along the border of capsule attached to the inter-trochanteric line; the head of the bone unattached posteriorly. Some of the cases are recent; but it will be remarked we gave one before of five weeks' standing readily cured.

Case 1.—*Dislocation into the Foramen Ovale.*—In February, 1848, a rather slightly made young woman, whilst stepping from a cab in motion, fell to the ground. The accident happened about eighteen hours before Mr. Birkett saw her. She was at the time of the receipt of the injury slightly under the influence of wine or spirits. The axis of the limb, and other well marked indications, were diagnostic of the site of the head of the femur, which was the foramen ovale. Chloroform having been administered, a round towel was adjusted in a clove-hitch knot around the thigh close above the knee, and extension was made by means of this towel by the dresser in a line parallel with the central axis of the body, his heel having been *placed against* the head of the femur in the region of

the foramen ovale. Immediately that all muscular irritability ceased, the dresser made extension, Mr. Birkett slightly rotated the limb, and the head of the femur was replaced in the acetabulum. The reduction of the dislocation was accompanied with a slight jerk.

Case 2.—*Dislocation on the Dorsum Ilii.*—A woman, aged 45, had been the subject of repeated dislocations of the head of the thigh-bone, this occasion being the twenty-second! The head of the femur could be readily felt upon the dorsum ilii, and the other indications of this dislocation were all well marked, such as shortness of the limb, the inverted toe on opposite ankle, &c. Chloroform was administered, and the dresser, Mr. Madge, placing his heel and foot against the pubes, and grasping the limb just above the ankle, made direct extension and gentle rotation outwards. In less than a minute reduction of the dislocation was accomplished. This patient expressed herself highly delighted with the method adopted, for she had been subjected about once a year for the last twenty years to the old plans, with their attendant pains and draggings.

Case 3.—*Dislocation on the Dorsum Ilii.*—A woman, aged 29, strong, and in good health, fell from a window to the ground. Mr. Birkett saw her about two hours after the accident, when every indication existed of the head of the left femur being situated upon the dorsum of the ilium. Chloroform was administered, a round towel was adjusted close above the knee, and the dresser, Mr. Newnham, made direct extension therewith, his foot being placed against the pubes. In this instance, immediately all muscular contraction ceased, the head of the thigh-bone was heard to enter the acetabulum with a noise, accompanied by a violent jerk.

Case 4.—*Dislocation into the Ischiatic Notch.*—A very strong, muscular, healthy, and active "long-shore" man was admitted into Guy's Hospital in the winter. He had fallen a few hours before, and Mr. Birkett immediately saw that the head of the right thigh-bone was in the ischiatic notch. The man was placed under the influence of chloroform, and the dresser placing his foot against the pubes, was assisted by a student in making extension therefrom. The limb was in this case directed slightly outwards. Within a minute after complete muscular inaction had been established, the head of the thigh-bone was placed in the acetabulum, unknown to the bystanders and those effecting the reduction.—*Lancet*, *Aug.* 4, 1855, *p.* 105.

54.—*Reduction of a Dislocated Femur without Extension.* By E. Cock, Esq., Surgeon to Guy's Hospital.—We have repeatedly, of late years, called the attention of our readers to the plan now generally adopted for the reduction of dislocations of the thigh-bone, which accomplishes its end without resort to any form of extending force. To dispense entirely with the cumbrous mechanism usually advised in surgical works is, doubtless, no small advantage in favour of the modern plan. It is one also which will be particularly appreciated by surgeons living in country districts, to whom such cases are liable to happen at times, when the whole armamenta may not chance to be at hand. But not only is the flexion plan superior to the extension one in being attended by almost no trouble, and requiring no apparatus; it is more efficient. In proof of this last assertion, let us cite the following case:—On Monday last, a muscular labourer, aged 23, was admitted into Guy's Hospital, under the care of Mr. Cock, on account of a dislocation of the left femur, on to the dorsum. In Mr. Cock's absence, the reduction was commenced in the ordinary way, about four hours having elapsed between the accident and the attempt. We should here state that the dislocation was an extremely well characterized one. Chloroform was administered, and for upwards of an hour the most energetic attempts were made, by means of manual traction, to effect replacement. Pulleys were not employed, but the united force of the six assistants who undertook the extension must have been equivalent to any degree of mechanical power which could wisely have been resorted to. The attempt failed, and it was at length deemed necessary to desist. On the following morning, Mr. Cock undertook the case. The man was taken into the operating theatre, placed in position, and, the pulleys being in readiness in case of need, chloroform was given. As soon as complete insensibility had come on, Mr. Cock took the *thigh, flexed it on the pelvis*, bent it outwards, and made a slight rotatory move-

ment, when the head of the bone slipped into its socket. The reduction did not take half a minute, and was accomplished without the apparent application of any force.

With regard to the direction in which it is necessary to apply force in reduction without extension, it may be concisely indicated in the formula—lift up, bend out, roll in. The thigh is to be flexed on the pelvis, and the operator, taking hold of the patient's knee, is to bend it outwards away from the axis of the body. In that position a slight rotatory movement is to be accomplished, and the head of the bone will slip into place. The explanation of the success of these movements will be apparent to any one who is familiar with the relative positions of the parts implicated. Movements modified according to the different positions taken by the femur, and which will readily suggest themselves to those possessing anatomical knowledge, are equally effectual with the other varieties of dislocation at the hip. One principle is, that the femur is made to constitute a powerful lever in the hands of the operator, and it may be well to remark that, in cases in which the length of leverage may not seem sufficient, the difficulty will be at once met by using the whole limb, and grasping the foot instead of the knee.—*Med. Times and Gazette, June* 30, 1855, *p.* 644.

55.—CASE OF COMPLETE DISLOCATION OF THE LOWER JAW.

By W. Colles, Esq., Surgeon to Stevens' Hospital, Dublin.

[A young lady, aged 25, while yawning, felt a jerk in the jaw, and found that she could not close her mouth. She applied to a medical man, who recognized a dislocation, but failed in his efforts at reduction. She then applied to Mr. Colles about three hours afterwards, who says:]

Before attempting reduction, I wished to ascertain the position in which I should have most command of the force to be used. Standing before her I passed both thumbs into the mouth, but felt I would not have a position the most favourable for applying all my force if necessary.

I then stood behind her, and it at once struck me this was the position which afforded most advantages.

Placing her head against my chest, I passed each thumb as far back on the corresponding side of the jaw as possible; by making a rotatory motion from the wrist I found the bone to yield; by now adding a motion of drawing the hand in towards the chest, the left side first, then the right, slipped into their positions, and the patient closed the mouth, the rows of teeth falling into their relative positions, and she now could speak plainly.

I think there are many advantages to be derived from attempting reduction in this posture, viz. the surgeon standing behind the patient, the head applied to his breast, and the thumbs turned inwards on the corresponding angles of the jaw, the fingers under the bone in front.

In the first place, the head is much more secure than in the original process, where it is applied against a wall, because in the latter the surgeon may press down the bone, and the patient generally will draw the head in the same direction by moving the body forward in the chair.

By standing behind the patient, while depressing and pushing back the thumbs, he is pressing forwards with the chest, and thus fixes the head more steadily and assists his manipulations, and even if the patient do move on the chair, a slight motion of his body will suffice to counteract this movement, and retain the head steadily fixed.

Another advantage is, that he can use much more force, because when standing in front he can only use the muscles that depress the hands; for in addition to the power of these muscles, he is assisted by the powerful class of muscles that rotate the thumbs inwardly; and besides, in the former case, his pressure is away from his body, whereas in the new position the pressure is more directly downwards and towards himself. The only disadvantage in this proceeding, if it can be considered one, is that the mouth is stretched more than in the original plan.

I know this proceeding may, to many, appear awkward and insufficient; but I would only request the surgeon having such a dislocation to treat, before proceed-

ing to reduction, to do as I did—place himself in both positions, and I have no doubt he will feel convinced that the position in which he can use most force and most advantageously, and also have the motions of the head more under his control, is when he stands behind the patient, and proceeds as above recommended.—*Dublin Hospital Gazette, July* 15, 1855, *p.* 177.

56.—THE MODERN TREATMENT OF FRACTURES.

By Benjamin Hunt, Esq., Surgeon to the General Dispensary, Birmingham.

[A young man, aged 19, a bricklayer, was engaged building the second story of a house, when the scaffold gave way, and he fell to the ground. On being taken to the hospital, the femur was found to be fractured transversely, immediately above the condyles, the upper portion projecting in front, and the lower portion behind. Reduction was easily effected before he had recovered from the shock.]

The limb was immediately bandaged firmly, beginning at the foot and ending at the crest of the ilium, with many turns over the left hip and buttock, so as to cover them as much as possible by what is called the spica bandage. A thick solution of starch was next laid on; then the millboard splints; over these more starch; and lastly, more bandage, exactly similar to the former in extent and method of application. The whole process occupied forty minutes in execution, with the aid of two assistants.

The millboard splints consisted of two for the leg and four for the thigh: those for the leg were applied, one on the outer and the other on the inner side, including the foot, and extending upwards to the head of the tibia and fibula. Their width opposite the calf should not be more than a hand's breadth, and at the ankle not wider than the tips of three fingers: they should turn over on to the dorsum and sole of the foot about an inch, and should not encroach upon the metacarpal joints of either great or little toe, nor upon the back of the heel. Those for the thigh were about four inches wide, and consisted of an outer and inner, and anterior and posterior. Of the two former, one reached from the perineum, the other from the crista ilii, to three inches below the knee, overlapping those of the leg: the posterior extended also from the crista ilii to the calf of the leg; the anterior, from the groin to the upper margin of the patella.

It will be observed, that no padding to protect the skin over the bony prominences from the pressure of the millboard splints was made use of; the necessity for such being obviated by careful adaptation of the apparatus: for example, in bandaging the limb, the roller should be laid on evenly with as few reverses as possible; the starch should not be lumpy; the millboard must be well soaked, and moulded accurately to the subjacent surface; and their edges made thin by scraping. The absence of padding gives the apparatus a more symmetrical appearance, and allows a more even pressure to be exerted over the whole limb. It was supposed that the pressure of the apparatus when dry against the bone would cause sloughing of the intervening skin, but experience has proved otherwise.

The sensation experienced by the patient, directly after the apparatus was put on, in this and most cases, was a numbness of the limb, which passed off in a few hours. This man was kept as motionless as possible for forty-eight hours; the apparatus was then cut up from the toes to the groin, along the anterior surface of the limb; the fragments were in good position; a fold of lint was inserted between the limb and the case, where, from the subsidence of swelling, an interval existed: the case was reclosed, and its edges kept together by bandaging from the foot to the groin; and, by smearing the surface with starch, slipping of the bandage was provided against, and the solidity of the apparatus rendered complete. This superficial coating of starch dried in a few hours; and then he was allowed to go about on crutches, supporting the injured limb with a sling from his neck to his foot.

From this time, the third day after admission, until his discharge at the expiration of six weeks, he never kept his bed for a single day, and required no attention *from me* during that time.

On the morning he left the hospital, I examined his limb; it was of the same

length as its fellow; the muscles were rather shrunken; and the knee-joint very stiff. The fracture had firmly united, without any deformity of the bone: the only indication of the seat of injury was some thickening just above the knee-joint. During the last fortnight, he had discontinued the use of the sling, employing his limb in progression with the aid of crutches; and, to give freedom to the ankle and hip joints, for this purpose, the apparatus had been slit up at the dorsum of the foot, and at the groin. In the present instance, a simple bandage was put on; and he soon regained sufficient use of his limb to enable him to walk with a stick.

I saw him four months afterwards. He was then at work, and had entirely regained the use of the knee, and the full development of the muscles.

Remarks.—Taking the age of this man and the position of the fracture into consideration, together with the very favourable recovery, I think we may fairly suspect the injury to be a separation of the epiphyses from the shaft; and this suspicion is strengthened by the amount of swelling immediately following the injury. Distinct crepitus was felt after the displaced fragments had been brought into apposition. Be the injury either fracture or diastasis, the disturbing influences are the same; muscular action had to be controlled in either case; and this was effected by fixing the neighbouring joints, and exerting such pressure upon the muscles themselves as would prevent their contraction.

Case.—Thomas Coyle, aged 56, a bricklayer, was admitted into the Queen's Hospital on November 2, 1853, having a short time before sustained a fracture of his left thigh, and of the radius of his left arm. He fell backwards from a ladder while in the act of ascending it with a bucket of water in his left hand, and came to the ground, the distance being about fifteen feet. When seen, he was suffering severely from the shock, and complained of much pain in the left shoulder, wrist, and thigh. The shoulder and side of his chest were contused, but not otherwise injured. Immediately above the wrist, on the palmar aspect of the forearm, there was a considerable prominence; and on the dorsal surface, one inch above the carpus, a depression, most marked towards the radial border; the fingers were partly flexed. By grasping the hand, and making extension, the deformity was greatly lessened; and, by rotating it at the same time, distinct grating, one inch above the wrist, could be felt, leaving no room to doubt that the radius was fractured at this spot. When extension was discontinued, the deformity returned; the upper fragment projecting forwards, the lower backwards.

The treatment adopted in this case was that recommended by Dupuytren; the forearm being midway between pronation and supination, the hand was abducted by drawing it downwards over the extremity of the ulna. To maintain it in this position, a curved wooden splint was applied to the dorsal surface of the forearm, reaching from the outer condyle to the ends of the fingers; and a well-padded straight splint on the palmar aspect, from the wrist to the bend of the arm. Although great care was taken to prevent displacement of the fragments, still, at the end of the third week, when the splints were finally removed, some deformity remained, with inability to flex the fingers; and it was many weeks before he regained the use of his hand.

The femur was broken at the junction of the upper and middle thirds; the superior fragment was tilted forward; the lower was drawn upwards, and could not be felt amongst the muscles; the limb was everted and shortened, the left heel being on a level with the inner malleolus of the right leg. The patient was a healthy-looking man, but of an irritable and anxious disposition. The treatment consisted in applying an apparatus similar to what has been described in the preceding case, with the addition of a wooden splint outside the apparatus, reaching from the axilla to the foot, to prevent him from moving until the apparatus had become dry.

On the third day, the wooden splint was dispensed with; and then the apparatus was cut open with a pair of stout curved scissors, along the sole and dorsum of the foot, up the anterior of the leg and thigh to the groin. The limb was then inspected; one-half of the apparatus only being drawn aside from the limb, while an assistant with both hands kept the other firmly applied. The examination of this side having been completed, this half of the apparatus was replaced, and made to serve the purpose of the other, while that was withdrawn to permit a like

inspection of the other. The patient had complained of pain at the knee, which was found to proceed from pressure upon the patella by a portion of the millboard splint, which being removed gave relief. The upper fragment also appeared to be somewhat tilted forward, probably since the apparatus was opened; but, to make sure of the ends being approximated, a broad pad of lint was laid along the thigh, in the course of the superior portion of the bone. The apparatus was then closed, and firmly bandaged over; after which a light coating of starch was laid on: the apparatus was then perfect. He might, without apprehension of mischief, be lifted about from one couch to another; or, if needful, have taken a journey. The injured limb was so packed as to be perfectly immovable within its case.

This poor man suffered severely from the effects of the fall, having a sharp attack of inflammatory fever for several days, accompanied by a most troublesome cough. The contusions of the shoulder and chest gave him much uneasiness; so that it was not until the third week that he was permitted to be dressed and placed on a bed by the fire. He was unable to go upon crutches, because of the injury to the left wrist. At the sixth week, he contrived, by having the apparatus cut so as to set his ankle and hip joints at liberty, to get about with the aid of a crutch and stick; and, when discharged from the hospital, a fortnight afterwards, he merely wore a part of the apparatus about his thigh, and walked with a stick only.

Case.—G. Wilkinson, aged 26, employed on the railway, was admitted into the Queen's Hospital at 3 A. M. on October 8th, 1853, having a short time previously sustained a compound fracture of his right thigh; he was getting over a boarded fence five or six feet high, on the other side of which an excavation several feet in depth had been made unawares to him, and which from the darkness of the night, he did not discern; instead, therefore, of alighting upon the ground, level, as he supposed, with the opposite side, he fell with much violence to the bottom of the cutting, and upon attempting to rise, found he had injured his right thigh.

When brought to the hospital, he was suffering greatly from shock; his trousers were torn and bloody; opposite the rent could be seen a wound an inch and a half long, rather above the middle of the thigh, on its outer side: as he lay upon his back, the limb was found to be three inches shorter than the other, and everted. The femur was fractured at the junction of its upper and middle thirds; the superior fragment was tilted forwards, the inferior drawn upwards. By extension, the limb was restored to its natural length, and by pressing down the upper fragment, coaptation was readily effected; it was now seen that the wound led directly to the fracture. The long splint was temporarily applied, the wound having been first cleansed from blood and dirt, and its edges approximated by plaster. A few hours afterwards, the system having rallied from the shock without hemorrhage coming on, the long splint was carefully removed, extension being kept up by an assistant, and the apparatus was applied as described in the first case here related.

On the second day, the limb was examined: the edges of the wound had adhered, the thigh was not much swollen, and the fragments of the bones were in apposition. The apparatus, which had been cut open to allow inspection of the limb, was most carefully reclosed and the patient ordered to keep as quiet as possible.

He went on well—that is to say, without pain or any febrile disturbance—until the ninth day, when these symptoms, with rigors, were present. The limb was examined, and found to be somewhat swollen at the seat of injury, while the skin around the wound was reddened; an opening, four inches square, was made in the apparatus, to permit inspection of the wound, and the application of poultices without disturbing the limb. Suppuration soon followed; the wound opened, and discharged much ill-conditioned purulent matter for several days; after which, the discharge became less in quantity and more healthy in character. The bone could now be felt with a probe denuded of its periosteum for some extent; but as the patient improved in strength, and the limb was so completely supported by the apparatus that he could be moved in and out of bed without disturbing the fracture, it was hoped that exfoliation might take place, and the wound ultimately heal. This hope was not to be fulfilled: the man did well for a time, but fresh abscesses formed, hectic fever set in, and amputation became imperative. The limb was

removed after the circular method by Mr. Sands Cox, exactly two months from the occurrence of the accident, the man ultimately recovering.

Remarks. The utility of the apparatus for the fractured thigh was in this case most remarkable; for during the two months an endeavour was made to save the limb, the patient could be moved without suffering any pain or inconvenience; the wound could be dressed as often as required without any disturbance of the fragments; and although the apparatus was worn until the limb was brought to the operation table for amputation, yet it was neither shortened, deformed, nor excoriated. In fact, the treatment adopted fulfilled all the indications necessary for the reunion of bone under ordinary circumstances, and therefore the want of success must be attributed to the severity of the injury and the weak constitution of the patient. It was afterwards found that an inch and a half of the entire thickness of the lower shaft was necrosed, and that the process of separation had commenced, while the surrounding structures formed the walls of a large cavity lined by a thick pyogenic membrane.—*Association Med. Journal, July* 6, 1855, *p.* 622.

57.—TREATMENT OF CONTRACTIONS FROM RHEUMATISM AND OLD CASES OF ANCHYLOSIS.

By John Erichsen, Esq., Surgeon to University College Hospital.

[Five cases of this kind have lately been under Mr. Erichsen's care at University College Hospital, and illustrate well the resources opened up by chloroform.]

These cases, under treatment at different times, have been the result of chronic inflammatory disease of the knee-joint; in all of them the leg was bent on the thigh to different degrees, varying from a right to a more or less acute angle; in none of the cases could the patients put the foot to the ground or use it in progression. The plan of treatment adopted by Mr. Erichsen is, to place the patient fully under the effects of chloroform, so as to relax the muscles of the limb, and render the patient insensible to the pain of the operation; then, as the lesser evil of the two, forcibly to straighten or extend the bent-up leg. In doing this, we noticed on more than one occasion loud snaps or cracks in the joint—not a little alarming at first, though without danger—as the false membranes within and ligamentous structures outside the joint were broken through. The extended limb is then put up in a straight splint, evaporating ether lotions applied, and the patient kept quiet. Generally this plan suffices to straighten the limb, but in some very obstinate instances division of the hamstring tendons is required; this, however, Mr. Erichsen finds it rarely necessary to employ, only one of the five following cases requiring it.

Case 1.—A young woman, aged twenty-two, who had been attacked April, 1855, with acute rheumatism and rheumatic contraction of the left knee, the latter bent at nearly a right angle and excessively painful, came under Mr. Erichsen's care, who succeeded in straightening the limb under chloroform. The subsequent inflammation was easily reduced by leeches and slight mercurials. She appears latterly quite well, and wears the starch bandage. She would not allow the limb even to be touched previous to the use of the chloroform.

Case 2.—A man aged twenty-three, came under care in July, with contraction of the left knee, which was bent at right angles, and had been in this condition for eight months, the result of inflammation of the joint. There was no pain or uneasiness about it; very limited motion, not more than about two inches when he attempted to move the foot. Mr. Erichsen had him placed under the influence of chloroform, and then forcibly stretched the limb: loud crackling noises were heard as if something were being crunched or torn through. There were no inflammatory symptoms subsequently; and he was able to leave the hospital in ten days, merely wearing starch bandages.

Case 3.—A woman, aged thirty: anchylosis nearly complete of the left knee for nine months, consequent on rheumatism; scarcely any motion in the joint; no pain or tenderness. The limb here also was straightened, or forcibly extended, under the influence of chloroform. The extension was attended with loud snapping or crackling of the old adhesions. Some severe inflammatory action followed,

which, however, was easily subdued by evaporating lotions. This woman also had starch bandages applied; and left the hospital quite improved in health.

Case 4.—A woman aged forty-two, whom we saw operated on early last month. She complained of anchylosis of the knee, with bent or twisted condition of the fore-arm and hand, all the result of rheumatic inflammation contracted two years since. Mr. Erichsen straightened the limbs as usual under chloroform; though at first he believed that he should have had recourse to division of the tendons. Loud crunching sounds were heard, as in the former cases. This case has also done well.

Case 5.—This was an instance of anchylosis of the left knee, in a female, aged thirty-two, of not less than sixteen years' standing, during the whole of which period the limb had not been put to the ground. The leg was considerably wasted, though nearly as long as the healthy limb; it was bent nearly at a right angle; the hamstring tendons were very tense. Mr. Erichsen having placed the patient under chloroform, divided these tendons, and then forcibly straightened the limb, tearing down, apparently to us, several old adhesions, in and around the joint. No inflammatory action supervened; and this limb is now in a straight position, supported by starch and gum bandages.

These cases may not claim any superiority over many others of a like kind by their originality, yet they are deserving of notice for their practical value.—*Lancet, August* 18, 1855, *p.* 145.

58.—*Application of Cold to Sprains.*—Many different opinions have been entertained as to whether recent sprains should be treated by warm or cold applications. We find that Mr. Cock, of Guy's Hospital, entertains, as the result of his large experience, a very strong preference for cold. He states that the consequences of a sprain may be very much limited, both in duration and severity, by the early and efficient employment of cold. It should either be done by iced water, or by irrigation. Mr. Cock is accustomed to quote by way of illustration of the powers of cold, the certainty with which the application of ice will induce the absorption of effused blood in an ordinary ecchymosis, a power which, by the way, in certain cases of "black eye" may be turned to good account.—*Med. Times and Gaz., July* 21, 1855, *p.* 68.

ORGANS OF CIRCULATION.

59.—REMARKABLE CASE OF SUBCLAVIAN ANEURISM; NEW METHOD OF TREATMENT.

By Prof. FERGUSSON, F.R.S., Surgeon to King's College Hospital.

[Since the researches and cases of Dr. Kirkes, it seems generally conceded that small fibrinous clots may be transmitted from one part of the circulating current to another; endocardial fibrinous deposits may pass from the heart after inflammation into some of the branches of the aorta, producing complete obturation of the vessel beyond that part. The surgical application of this will be seen to be very important.]

Mr. Fergusson presented to his class on the 4th of August a most interesting case—one of a series, as we subsequently learned—where a very remarkable cure has been effected in well-marked subclavian aneurism, by a new and specific method of manipulation which he has adopted. We may state here that we saw the case about a year and a half ago also, when the man was previously under treatment. Some short period before that time Mr. Fergusson conceived the plan of stopping the circulation in the aneurism by pressing the sides of the aneurismal sac together, with their intervening fibrinous deposit; and in this case, from the phenomena attending the manipulation, there appeared to us very little doubt that the object held in view by Mr. Fergusson had been attained—viz. the clots of fibrin in layers in the aneurismal sac had been displaced, and, spreading *from the subclavian into* the axillary and brachial, a new sort of Brasdor's opera-

tion, at the distal side of the subclavian, had been the result. In other words, we believe Mr. Fergusson here, without ligature, had attained all the advantages of the last-named operative proceeding; for not only had a blocking-up of the axillary and brachial been followed by a partial stoppage of the current through the enlarged aneurism of the subclavian, but even with very marked, but not so satisfactory, results as regarded the pulse in the radial at the wrist, which became completely stopped for a time, with symptoms of paralysis in the arm, all resulting from the displacement of the fibrinous clots.

The aneurism in the present case was situated in the subclavian, in the usual site of subclavian aneurism—namely, between the scaleni muscles, and to us seemed almost to invite some modification of the Dublin surgeons' plan by compression on the first rib. The plan by compression, we need hardly observe, is in general applied to the artery above the aneurism, between the latter and the heart. Crampton, however, in 1816, showed that the obliteration of an artery can be effected without rupture or ligature of its coats, as generally conceived, simply by this blocking-up process. The early volumes of 'The Lancet' contain cases also cured by Brasdor's operation; it seems, however, more applicable to carotid than subclavian aneurism.

Mr. Fergusson related to his class on the 11th, at some length, the details of a previous case of subclavian aneurism, of the same character as the present, in which his ideas on this subject were first matured. In both cases the method of cure by deligation at the tracheal side of the scaleni, as well as Brasdor's operation at the distal end of the aneurism, were inadmissible; yet it was gratifying to find the present plan, by firm pressure of the thumb on the aneurism, so as to displace some of the fibrinous clots, followed up by local pressure, succeeded in obtaining most striking and in many respects curious but satisfactory results. Intimately associated as the subclavian is at the right side with the vertebrals and carotid, the method of displacing fibrinous coagula is not without danger. A patient under such circumstances will fall down perhaps in a fit from want of circulation in one side of the "circle of Willis," formed by these arteries; yet, as the cause is so apparent, the danger may not be very alarming. Some instances of cure of aneurism of even the innominata have been given by American surgeons, in which recourse was had to ligature on Brasdor's plan of the subclavian; the result here ought to be equally dangerous. Hodgson gives us cases also in which a plug of effused lymph had nearly obliterated the subclavian; while Gendrin has imitated all the phenomena of arteritis and blocking-up of aneurisms by injecting irritant substances into a portion of artery contained between two ligatures. In Mr. Fergusson's new mode of operation, we believe an entirely novel idea is acted on—namely, the displacement of the lamellated fibrin of the aneurism, on which no operation has been performed, and so directing the clots of fibrin that they shall block up the distal end of the artery so diseased. As Mr. Fergusson has expressed an intention of bringing the entire subject under the notice of the Medico-Chirurgical Society, we purposely abstain from giving the cases in detail. The method of treating aneurism by compression, originating with Desault and Hunter, and recently revived with such excellent results by the Dublin surgeons, will gain an immense accession of interest, if it should prove that the fibrinous deposit of the sac of the aneurism may be thus, as it were, utilized in bringing about the results hitherto gained in a different mode by Brasdor's operation at the distal end of the aneurism. Considerable caution will be at first necessary, as observed by Mr. Fergusson, in selecting cases which are fitted for the present method, as premature or ill-judged experiments in the shape of direct pressure or manipulation on the sac of aneurism not requiring it, one of which we mentioned recently as brought into Guy's, where direct and prolonged pressure had been made in the popliteal space before the patient came into hospital, would be certain to be followed by severe inflammation of the sac and other dangerous results. The spontaneous cure of aneurism is not unknown in practice; it may take place, it must not be forgotten, by a coagulation of the contents or increase of the quantity of lamellated blood in the sac, the cavity becoming filled, and the circulation conveyed to the parts beyond the disease by the collateral vessels; or, again, in some rare cases the aneurismal tumour may be doubled up and press upon the portion of artery leading directly to the aneurism; or in a third fashion, as *in a remarkable* case given by Mr. Liston, where the

patient had well-marked subclavian aneurism, which subsided and disappeared—an aneurism of the innominata pressing on and obliterating the aneurism of the subclavian!

Whatever may prove to be the correct pathological explanation of the phenomena in Mr. Fergusson's present cases, we deem it our duty to state here briefly that the cure seems complete and unequivocal without any ligature of vessels, nor is there any reason to believe the case was one of spontaneous cure of subclavian aneurism, as in the case given by Mr. Liston. It is now two years since the man came first under observation; he has been, on and off, under treatment all that time in King's College Hospital and at home in the country; but happening to be in town within the last fortnight, Mr. Fergusson took advantage of the opportunity to exhibit the case to his class.—*Lancet, Sept.* 1, 1855, *p.* 197.

60.—ON THE TREATMENT OF WOUNDS OF THE PALMAR ARCH.

By Dr. Charles D. Arnott, Gorleston, Great Yarmouth.

[This is a subject of great interest to the practitioner, and demands measures at once prompt and effective. The most important feature in the treatment is the arrest of hemorrhage. Formerly surgical hæmostatics, as pressure, or the actual cautery, were used for this purpose; these have now given place to the ligature. This, although so simple, safe, and effective, yet requires considerable anatomical knowledge and manual dexterity, or occasionally it may be followed by disasters of a most formidable character.]

Let us briefly consider the special subject of hemorrhage from wounds of the palmar arch.

In primary hemorrhage occurring briskly and *per saltum*, the obvious surgical principle is to search out and secure the bleeding point, or points, by ligature. This is, in the generality of cases, easy, in almost all, effectual. Should moderate exploration fail to discover the bleeding vessel, the hemorrhage is completely controllable by properly adjusted pressure. In secondary hemorrhage, occurring, it may be, after the lapse of days, exploration for the wounded vessel, or vessels, is unlikely to prove successful, and should not be attempted. Pressure judiciously and properly applied, will be found quite effectual. The principle I wish to inculcate is, that under no circumstances, in hemorrhage from the palm, is deligation of the arterial trunks on the cardiac aspect to be deemed necessary or attempted. I am aware this will at present hardly find general favour. I am, however, certain of my fact; and, therefore, state it boldly.

It must be admitted that ligature of the larger arteries is, under ordinary circumstances, a procedure not entirely free from danger. The Dublin surgeons, as is well known, would fain supersede even its acknowledged most legitimate adoption, on this score principally. Paradoxical as it may seem, I insist on its rejection merely, in cases where it is unnecessary, nay, even inefficacious. Deligation of the arteries of the fore-arm is only required when they themselves are wounded. The ligature is then, of course, applied directly to the bleeding point, or points. Ligature of these vessels, for the purpose of arresting hemorrhage from wounds of the palmar arch, must, *per se*, necessarily fail; the supply through the interosseous inosculations, always free, upon the establishment of the collateral circulation, soon becomes materially augmented, and cancels its effect. But even were it possible to deligate all these vessels, the united result remains the same—a slowing, or mitigation only of the force of the circulation through the wound's site; and this, I unhesitatingly affirm, can be done by simpler and safer means.

In illustration of the inutility and danger of arterial deligation on the cardiac aspect for the arrest of hemorrhage from palmar wounds, I shall append an abridged account of a case treated so lately as the present year in a London hospital, and reported in 'The Lancet' of June 9th, as a "Case of Wound of the Palmar Arch, followed by serious Hemorrhage, for the cure of which the Ulnar, Radial, Brachial, and Axillary Arteries were successfully tied." [It was subsequently stated that the word "successfully" was so obviously a misprint for "*successively*," as to require no correction; but this scarcely accords with the

following sentence, which occurs in the second paragraph of the report:—"In the case the particulars of which I am about to relate, are presented two features of remarkable interest. The first involves *the successful issue of an operation, or rather of a series of operations*, on the arterial trunks of a man," &c. The sequel undeniably proves that every operation was utterly *unsuccessful*.]

"A man, aged twenty-eight, presented himself on the 3d of February last, having suffered from repeatedly occurring hemorrhage, caused by a wound in the palm of the hand, accidentally inflicted by himself on the previous 17th of January with a blunt knife, the point of which penetrated the left hand at a part where the ulnar artery enters the palm. The bleeding was most profuse, and unchecked by any temporary expedients such as are usually resorted to. He was admitted on the day of the accident; no bleeding vessel could be discovered, and a compress was applied. Hemorrhage returned in the night, and a bleeding orifice being discovered, a ligature was placed around it. The man remained in the hospital a few days, then persisted in returning home. On reaching his own dwelling, hemorrhage to an alarming extent occurred. A surgeon in the vicinity attended, who checked it by means of pressure. The bleeding returned on several occasions until February 3rd, when he was again received into hospital, and the radial and ulnar arteries were tied at about an inch above the wrist-joint. The 10th of February, the eighth day after the operation, blood in small quantities appeared in the ulnar wound. On the 12th (the tenth day) the ulnar ligature separated, and hemorrhage from the proximal end of the vessel followed. This circumstance having occurred at midday, I had the advantage of the opinions of my colleagues as to the course to be pursued. It was suggested that an attempt should be made to tie the ulnar artery in the palm. That proposition was declined. It was then suggested that the ulnar artery should be tied at some distance above the former ligature. I yielded to this general opinion, and tied the ulnar artery at about four inches above the wrist. He progressed favourably until the 16th (four days after the last operation), when hemorrhage returned with violence from both the proximal end of the vessel, where last tied, and from the distal end, where first tied. There was also considerable oozing from the palm. The wounds of hand and forearm had made no positive advance towards reparation. The patient was sadly reduced from loss of blood, which had flowed for some minutes, while partially arrested only by himself in his ineffectual attempt to tighten the tourniquet, now constantly applied. He was again laid on the operating table, and the brachial artery tied. On the 17th, the ulnar artery, at its distal end, burst out, profuse hemorrhage followed, and blood oozed freely from the wound over the brachial artery. The tourniquet was again tightened and the arm rolled, but the quantity of blood again lost told painfully on the man. He revived under brandy and other stimulants. I reached the hospital at midnight, full of anxiety as to the future. The operating-theatre was lighted up, and the instruments of amputation all laid out ready for use. Four operations had already been performed without success. Could I risk another more formidable operation by placing a ligature round the axillary artery? The objection to amputation appeared yet more formidable. I decided, and tied the axillary artery. The arm was rolled firmly by means of a bandage, because, although I deemed it a measure not unlikely rather to increase the liability to general gangrene of the entire extremity, yet every other care and consideration now merged in the question of life. Hemorrhage recurred from the situation of the brachial wound on the 19th, and was checked by the application of lint and carefully adjusted pressure. On the 21st, serious hemorrhage recurred from the brachial. I reached the hospital at three a. m., with a very reduced hope of saving the man's life. The arm was bared, and the brachial wound was accurately filled with scraped lint, and a graduated compress was rolled firmly over the course of the vessel. On the evening of March 1st, on the eleventh day from the last operation, a sudden burst of hemorrhage occurred from the axillary trunk, that deluged the bed in a few seconds. The bleeding, by far the most formidable that had yet occurred, was arrested by the firm pressure of the re-adjusted tourniquet. I visited the hospital during the night, with the combined feeling of disappointment at the ill success of our past struggles for victory, and a firm resolution to fight the battle to the last. The question of amputation *was again raised*, but there was an objection to the

operation that was conclusive to my mind—it was too late. The amputating-knife would have divided the trunk of the artery below the axillary ligature! and the disease for which the operation had been undertaken would have been left behind. With respect to placing a ligature around the subclavian, what reasonable hope could be entertained that I should be more successful with it than with former operations; the prospect was less encouraging, and I early relinquished this as a course worthy of adoption. One alternative remained, and that I adopted—viz. to stop the bleeding at any expense to the arm, even though general gangrene were the consequence. I ordered the arm to be firmly rolled from the hand up to the neck, with a force that would insure as near as might be the apposition of the opposite sides of the main arterial trunk of the entire extremity. This operation was most efficiently done. On the fourth day the bandage and compress were removed and readjusted, without hemorrhage. During the early part of the month of April the wounds gradually but firmly healed, and at the present date, May 28th, he may be said to be convalescent."

The reporter of this case regards the peculiar condition of the patient's blood as having been the chief obstacle to its satisfactory progress, and speaks of it as a case of hemorrhagic diathesis. He attributes much effect to the therapeutic means employed to obviate this, and observes, "My hope lay in improving the condition of the patient's blood, and in this I think I may say I succeeded."

This view is so manifestly erroneous, as not to require refutation; but even granting its correctness, the surgical treatment adopted was so much the more faulty, and in opposition to sound and well-established principles. Had the hemorrhagic diathesis really existed, it may be observed, that no medical or dietetic means could, during the crisis, and under the circumstances, be reasonably expected successfully to antagonise the deleterious effect on the condition of the circulating fluid, which such excessive loss as is reported to have occurred while under treatment would inevitably produce. In such cases, every profuse bleeding deteriorates the quality of the blood most materially, and renders the chances of its final arrest all the more improbable. The vital fluid, originally poor in fibrin, is thus almost completely defibrinised, and all power of coagulation, or completion of the healing process, nullified.

The quality of the blood in the case reported, notwithstanding the imperfect observation that that "which had collected about the bedclothes and on the floor did not coagulate," there are reasons for believing was normal enough, and the nutritive function for its reformation (so soon as a fair chance was given for that operation) equally so. No improvement could occur before the one important item—arrest of hemorrhage, was effected. This done, Nature was fully equal to all the rest; and it is truly wonderful, considering the desperate condition entailed, and arrived at by treatment, however (thus at the eleventh hour and *in extremis*) pressure could have proved successful. It is further an incontrovertible proof of my assertion, that hemorrhage from the palm is (if by any means) thus restrainable; for if we can, in the very case that occasioned so much trouble, in this way after all command the flow from, and even cause permanent closure of, a ruptured axillary trunk, how much more easily, and while circumstances were more favourable, could we ensure arrest of hemorrhage and obliteration of the comparatively insignificant palmar arch.

The particulars of another case, a perfect type of its class, may now be placed in juxtaposition, and contrasted with that just considered.

"A labourer, aged forty, fell upon his scythe, thus causing an extensive wound completely across the palm of the hand. He bled most profusely. Arterial blood spirted very freely from the wound, and before I could apply the tourniquet to the brachial artery considerable hemorrhage occurred, and the man fainted. The palmar arch was evidently wounded. I strapped up the wound with adhesive plaster, and placed a firm compress of lint over the plaster, bandaging the hand and forearm moderately tight, and occasionally wetting it with cold water. *I also kept the tourniquet sufficiently pressing upon the brachial artery to moderately check the impetus of the circulation through the limb.* No further bleeding occurred, and as the wound remained easy, I did not remove the dressing for six days, when I was gratified to find it had nearly healed. The patient soon regained *his usual* health and strength."

I cannot resist directing special attention to this judicious observation, which accompanies the report: "When Nature is a little assisted, what serious injuries she is capable of repairing."

Comparing the simplicity and efficiency of the treatment in this case with the difficulties and dangers encountered in the former one—looking "on this picture and on that"—who could for a moment hesitate in deciding which is the more worthy of adoption. But it may be urged, there is no similarity or fair comparison between these two cases—the latter simple and ordinary, the former complicated and peculiar. It may further be argued that pressure, the treatment which I advocate, had a fair trial, and was found wanting when circumstances were thus complicated. That such is far from the fact I believe admits of easy and ample proof. Moreover, it can scarcely be denied, that, by the other mode—viz., arterial deligation on the cardiac aspect—the most desperate consequences ensued, every successive operation only increasing the danger, and eventually effecting what might justly be regarded as only by a miracle reparable.

I would emphatically reiterate the statement, that hemorrhage from palmar wounds, restrainable by any means, is effectually so by methodical and correctly adjusted pressure; that it may, under all circumstances, be thus more easily and safely treated than by indirect arterial deligation; and that this latter measure, often useless and dangerous, is unnecessary and unjustifiable. The assertion will, I am aware, not yet be universally accepted, and to some may even be unpalatable. Ligature of the radial and ulnar arteries, operations sufficiently easy, sometimes afford a rather pleasant bit of surgical practice, and, accompanied with, or followed by, a little anatomical eloquence with reference to their relations and landmarks, have, with the uninitiated, a very imposing effect. But trifling or vain show in surgery is highly reprehensible, and the adoption of hazardous measures, where simple and safe ones will serve, is surely more so, and must not be allowed to pass uncensured.—*Lancet, Aug.* 18, 1855, *p.* 141.

ORGANS OF RESPIRATION.

61.—CASE OF TRANSFIXION OF THE CHEST FROM SIDE TO SIDE BY A SHARP STAKE.

This remarkable case is communicated to the "Journal de Medecine," of Bordeaux, by Dr. Lassaigne, surgeon of the 11th regiment of the line. When we consider the extreme danger of penetrating wounds of the thorax, the recovery of the patient is certainly surprising.

Case.—A soldier was employed in gathering cherries, when the branch of the tree on which he rested his weight broke, and he fell a height of several feet; his trunk coming horizontally on the stakes which protected some vines placed beneath, he was literally spitted.

Dr. Bax, one hour and a half afterwards, found the wounded man lying on the ground, with the chest pierced from side to side by the stake; the point had entered the intercostal space between the seventh and eighth ribs on the left side, four or five fingers' breadth below the nipple, and rather behind it, and had come out between the fourth and fifth ribs on the right side, behind the angle of the axilla, the point projecting from the chest to the extent of fifty centimetres. The wounded man retained all his senses; his countenance did not indicate any great suffering; he only complained of the weight of his head when it was not supported, and of a difficulty in moving his arms; voice natural; no cough; apparently no disturbance of either respiration or circulation; no indication of hemorrhage either externally or internally.

Dreading hemorrhage, when no assistance was to be had, Mr. Bax was unwilling to remove the foreign body on the moment, and accordingly the patient was removed to an hospital in the neighbourhood. When placed in bed and undressed, a portion of the shirt was found to have been carried into the thorax, forming a kind of sheath around the stake, for a considerable distance. The stake was ex-

tracted with ease, the sheath formed by the fold of the shirt seemed to facilitate the operation. This was on the 3rd July.

Nothing unusual was observed subsequently except the occurrence of emphysema, which extended upwards to the neck; there was no cough or evidence of internal hemorrhage.

Intense inflammation of the side, and of the chest generally, supervened, but yielded to active treatment. On the 6th July an improvement had already taken place, and the wound on the left side had united by the first intention. The improvement steadily continued, the wound on the right side subsequently closed, and about the 25th July convalescence was established.

The patient was subsequently presented to the Society of Medicine of Bordeaux; after examining the wounds, the members agreed in thinking that the stake had passed through and through the lung.—*Journal de Medecine de Bordeaux.—Dublin Hosp. Gazette, Aug.* 1, 1855, *p.* 202.

62.—*Case of a Man Swallowing a Half-Sovereign.* By G. MALLETT, Esq., Bolton-le-Moors.—On the 17th of this month, a man, aged 26 years, put into his mouth a half-sovereign; a child playfully attempting to seize it, caused him to throw back his head; and, by so doing, the piece of money was precipitated into the larynx. Mr. Eames, an intelligent practitioner in the neighbourhood, was immediately sent for, and, finding such to be the case, requested further assistance. I was then summoned, and saw the patient about four hours after the accident.

The man was breathing calmly and naturally: he had no wheezing, cough, or other distressing symptoms; but he said he felt uneasiness about an inch below the thyroid cartilage; and, on placing the stethoscope over that portion of the trachea, a decided whistling in the respiration was heard. Taking into consideration the absence of all irritation, and in fact of all distressing symptoms, we decided that we should not be justified in opening the trachea until some cough and irritation had come on, in the hopes that the cough might be sufficient to dislodge the foreign body.

August 20th. He was much the same, except that the breathing was a little more whistling, accompanied with a slight degree of fever.

August 21st. A fit of coughing came on. He was directed to put his head lower than the body, and the half-sovereign was ejected by the cough. He has had no unpleasant feeling since, and is in fact quite well.

Remarks. I think the result proves that we were justified in deferring the operation—an operation easy enough to perform, but which is often attended with fatal results, either owing to the immediate effects of the operation, or more probably to the incurable nature of the disease for which it is performed.—*Association Med. Journal, August* 31, 1855, *p.* 813.

ALIMENTARY CANAL.

63.—IMPROVED FORCEPS FOR HARE-LIP OPERATION.

By Dr. ALDEN MARCH.

[The chief difficulty in this operation is to cut away just enough, and not too much, of the wounded edge of the fissure.]

Skey says, in his treatise on operative surgery, that "young operators are prone to remove too little." Pirrie, in his system of surgery, in describing the mode of operating for hare-lip, says, "the blade is then slightly turned so as to direct the edge a little outwards, and is brought down, cutting off a *thin slice* from the edge of the fissure." I object to the term, "thin slice," since I believe it to be well calculated to lead the new beginner or inexperienced surgeon to entertain the notion, that merely making raw the edges of the fissure, is all that will be required *before the application* of the sutures.

Such a procedure would be liable to result in a failure of firm union; or if union should take place, in two kinds of deformity—in an artificial *filtrum* or groove extending from the nostril to the lower part of the lip, and in an unsightly notch at the prolabium. On the other hand, it may be cut away so freely as to result in shortening, and consequently tightening the lip to an unpleasant degree.

To obviate, or to prevent the notch that is so apt to follow the old method of operating by straight incisions, two plans have been adopted; one with a semicircular cut from top to bottom; and the other with straight lines from the top to the upper border of the red part of the lip, and from thence towards the fissure at an angle of about 45 degrees, so that a long prolabium is preserved.

Fergusson, in his system of practical surgery, upon this subject remarks: "The semicircular line has been recently claimed by the surgical authority of the 'Edinburgh Monthly Journal of Medical Science'; and the line, with the angle at the upper part of the prolabium, is usually attributed to Malgaigne."

He further remarks, "I have tried both plans frequently, and can bear witness in their favour, as enabling the surgeon, both to do away with the notch above alluded to, as well as to give that length or depth to the upper lip, which is often so deficient. Neither of these lines, however, will be of much avail, unless the margins be freely paired; and in all the operations for hare-lip, which I have myself performed, whether single or double, I have never had any reason to regret having cut away too much, but occasionally have wished afterwards, that I had not been so sparing of the margins." The author further adds, "This is mentioned for the sake of the young operator, who may probably suppose, as I myself did, that he will not be able to bring the edges in sufficiently close apposition; on this score, however, he need be in no dread."

Fig. 1.

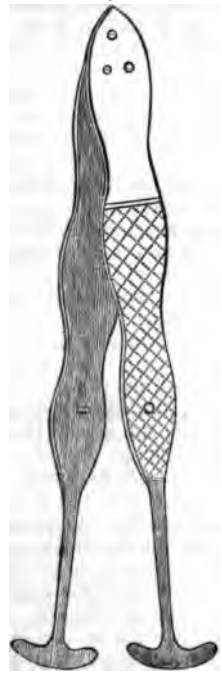
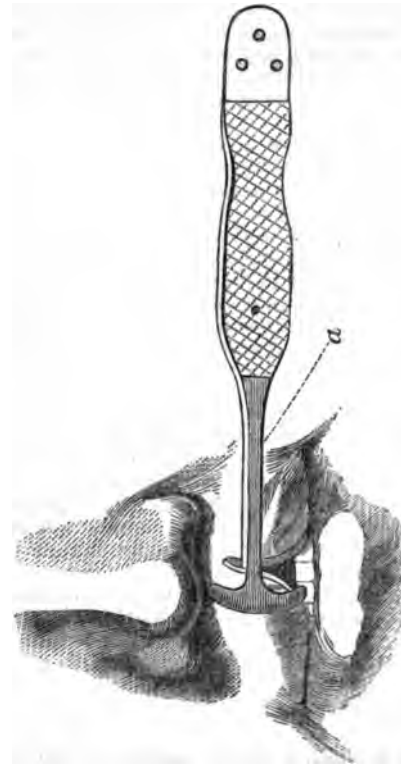


Fig. 2.



The instrument, or forceps, I have caused to be constructed, (Fig. 1,) is designed to combine the semicircular line of the Edinburgh surgeon, and the angular line of Malgaigne.

The jaws or transverse portion of the forceps are provided with blunt teeth, to make the hold upon the lip secure, and having a general and pretty regular curve on the outer border of three-fourths of its length; and from that point the line extends towards the handle or vertical part, at an angle of about 45 degrees, for the remaining one-fourth of the outer border of the jaws.

By the aid of this instrument the lip can be securely held, while its shape affords a secure guide in making the line of incision in such a way as shall secure all the advantages of both a semicircular and angular border.

All practical surgeons know that there is a considerable variety of *form* and *degree* of defect, or malformation, in hare-lip.

It will hardly be deemed necessary or important to speak of the number, or the duties of assistants. Suffice it to say, that the infant is to be held either in the lap of an assistant, or held securely upon an operating table, while the operator may place himself a little to one side, or in front of the patient; and embrace the left border of the fissure between the blades of the forceps, so that their oblique lower angle shall look towards the opposite free border of the fissure, and taking hold of the full thickness of the lip; the amount, and precise shape of the part to be removed will be indicated by the line of the outer border of the transom portions of the blades of the forceps.

When the forceps have been properly placed, (see Fig. 2), and secured by a suitable amount of pressure, the operator next proceeds to transfix, either from within outwards at the upper angle under the nostril, or from without inwards at the same point, with a narrow sharp-pointed bistoury, and to cut, by a sawing motion, downwards and towards the centre of the cleft, taking care to keep the knife close to the outer convex border of the forceps. In this way all of the free rounded border, at the point where the prolabium and rounded fissure run into each other, will be preserved. The opposite side is to be excised in a similar manner. If the operator be ambidextrous, he can change hands with the instruments—if not, the hands must cross each other, with that holding the knife situated above, and made to cut from without backwards and downwards and towards the central line of the fissure.

I believe it may be laid down as a fixed principle, that every necessary effort should be made to prevent undue incited or inflammatory action in both surfaces of the wound and around the sutures; therefore the farther removed the sutures are from the surface of the wound, and the smaller they are, consistent with the necessary degree of firmness and strength, the less likely will they be to exert an unfavourable influence upon a speedy and firm union.

It is thought to be a matter of no small importance to select the kind of suture and material best calculated to fulfil their intended designs. I have employed the linen thread and silk interrupted sutures; the pin and needle suture; I have used the common sewing needle, the common domestic pins, and the silver pins with steel points, and have succeeded very well with all of them.

Some thirty years ago, when the late Sir Astley Cooper was in the zenith of his professional glory, or about the time he published his surgical lectures, the interrupted suture was quite extensively employed in England and in America; and on the authority of one whose surgical law seemed almost as binding and as unalterable as that of the "Medes and Persians." Scarcely any one, except the continental surgeons, dared to oppose the surgical authority of Sir A. Cooper, nor hardly to think or act upon the convictions of their own observations and experience. And yet, in a few short years after the setting of the sun of the great English surgical luminary, so long ago as 1848, I witnessed the hare-lip operation performed in one of the London hospitals, by the late Mr. Aston Key, one of the cleverest operators of his day, when I found he had abandoned the interrupted suture, and had adopted the French hare-lip pins. From that time to the present, I have mostly employed metallic sutures in the operation for hare-lip.

I believe that small sewing-needles, having their heads well enlarged with sealing-wax, by which they can be held securely between the thumb and fingers; *and small common domestic* pins (if they can be found long enough), or what is

better, perhaps, entomology or insect pins, will answer all the purposes of those made for the express purpose.

The entrance of the pin should be about three-eighths of an inch from the cut border, and extend nearly or quite through the full thickness of the lip, and be made to enter on the opposite side as deep, and to have an exit at the same distance on the further side of the wound.

In operating on children, Malgaigne passes the needles through the whole thickness of the lip, by which perfect apposition is just as easily effected, and at the same time the wound is relieved from the irritation of the needle or pins (if there is any apprehension of such an effect), and the secretions of the mouth, and the food thoroughly excluded from the wound.

I have spoken of the use of the common sharp-pointed slender sewing needle as being well calculated to answer all the purposes of gold or silver pins. And as those who have not seen the experiment tried might be fearful of their tendency to become corroded and roughened by the moisture of the part, and consequently produce inflammation around them, I will briefly state the result of my observation and experience in their use.

The first operation for hare-lip I ever witnessed was at least thirty-six years ago, and in that the common "chapel sharp" needles were used, and with perfect success. And I commenced my career in the operative art of surgery with the operation for hare-lip, now nearly thirty-five years since, and for maintaining the cut edges in apposition I employed common sewing needles; and I have repeatedly used them with good success.

To show that highly polished steel will not readily induce inflammation when piercing or occupying different tissues of the human system, I will state that I have the apparatus of Malgaigne, which he used in the treatment of oblique fractures of the tibia, when there is a disposition in the lower extremity of the upper fragment to overlap and to "rise up," so as to press against the under surface of the skin. The means employed by Malgaigne to bring the refractory point of bone down to its proper place, and without making pressure on the integument over the bone, consisted in a yoke of an elastic steel plate of nearly half of a large circle, to which is attached a belt or strap, which is made to embrace the bed-piece and side-pieces upon which the limb is placed; and of a kind of bodkin, sharp-pointed screw, of three-sixteenths of an inch in diameter in the screw part, and the pointed part half an inch in length. A long fenestrum is situated in the centre of the yoke, and by a sliding block or female screw, into which the pin or peg screw is fixed, it may be made to rest on the inner face of either tibia. After the apparatus is properly adjusted, and the broken bones placed in apposition by extension, counter-extension, and coaptation, the sharp point of the bodkin screw is made to penetrate the skin, and to pierce the bone about an inch above the point of the overriding fragment. A few turns of the screw by the thumb-piece with which it is provided at the top, it is made to enter the bone nearly the eighth of an inch. The puncture in the surface of the skin is about the sixteenth of an inch in diameter.

I have thrust this instrument through the skin, cellular tissue, periosteum, and into the bone, as above described, and allowed it to remain in contact with all of the above tissues for three weeks, without producing suppuration, or even the least appearance of inflammation. It is thought that these facts will prove pretty conclusively that no fears need be entertained of any bad consequences arising from the use of steel needles in the operation for hare-lip.—*Transactions State Med. Society of New York, Feb.* 1855, *p.* 118.

64.—*On the Operation for Hare-Lip.* By M. Roux.—The cases that have come under Roux's care have been very numerous, and the operation has been performed at almost every period of life, from the age of one day to the fourteenth year. Roux, however, is distinctly in favour of operating at a time ranging from ten to twelve months, as he states that his failures after the operation on children some days or even some weeks old have almost equalled his successes. The argument supporting his practice is clearly stated, and is mainly drawn from the fact of the lips of *the child having then* acquired a certain amount of thickness, a

greater length for the application of the sutures, an increase and activity of circulation, and a consistency of tissue, capable of a better resistance to the traction of the threads and needles; and, furthermore, from the fact of the approximation of the two portions of the alveolar arch and palatine vault (in case of a cleft of these parts) taking place almost as rapidly as if the operation had been done at an earlier period of life. He recommends the course particularly in cases of hare-lip complicated with fissured palate, and makes an exception in favour of an early operation in many cases of simple hare-lip, provided the constitution of the child be sufficiently good to warrant success; for, as he justly remarks,—

"The lip will in a few days have recovered its ordinary conformation, and will be capable of exercising a force necessary for suction; the child will be able to take the nurse's breast, and will be deprived of the uncertain results of artificial nourishment."

In the account of the mode of operating, we find that the sutures were removed at the end of the third or fourth day, usually the latter, and that the needles were inserted three lines at least from the incised border.

The insertion of the needles through the lip at a proper distance, and their retention for a sufficient period, constitute the chief elements for success in this operation. We are in the habit of introducing them through the two portions of the lip, about four French lines from the proposed line of union, and of retaining them until the fifth or sixth day, and we believe this is the plan adopted by those who have had the greatest amount of success in the treatment of this affection.—*Lancet*, *Aug.* 25, 1855, *p.* 171.

65.—*On Removal of the Tonsils.* By LANGSTON PARKER, Esq., Surgeon to the Queen's Hospital, Birmingham.—Having determined that there are certain cases of enlarged tonsil, in which the organ of hearing is not concerned, that require an operation, the next question is how is this to be done. There are three or four ways. Some surgeons try to burn them down with nitrate of silver; some, again, to remove them by ligature. I have done it by ligature myself; but it is difficult, tedious, and painful, and is altogether an abominable proceeding. First, you have to get the ligature round the tonsil, which is difficult; having got it there, it requires tightening from time to time, which is also difficult; the ligature has to lie in the mouth for several days, producing a discharge of fœtid saliva, and leaving the patient in misery; sometimes also leaving a nasty troublesome sore when the diseased lump has fallen off. The proper way to remove an enlarged tonsil, is clearly by excision, and that simply by means of a curved probe-pointed bistoury. It is very easy to remove it in a proper way. The throat should be well exposed; the tonsil should be seized by a long pair of forceps, terminating in a small hook. You use the right hand if you have to operate on the left tonsil, and the left hand if the right tonsil. You then get a curved bistoury, probe-pointed, the half of the blade being wrapped round with lint to prevent injury to the surrounding parts. The tonsil should be pulled gently out; the knife then should be placed with its back to the base of the tongue; and you should cut from below upwards. If you cut downwards, you run the chance of injuring the tongue. Follow the curve of the pillars of the fauces, and take care that the blade of the knife is properly directed. It should not be directed straight upwards, but inclined inwards, at an angle of about forty-five degrees. Then it should be made to move with a sawing motion, till a portion of the tonsil is removed. Another question arises: How much should be removed? There is no necessity to remove it all: perhaps one-half or a little more will be quite sufficient. In both the cases under notice, about two-thirds of the enlarged mass was removed; that was quite sufficient to remove the impediment to deglutition. Tonsils may be removed in half a minute in the way I have mentioned, without much pain, and with no danger to the patient. In the operation, a very ingenious little instrument, which has struck me as being exceedingly useful as a sort of gag, may be employed. It is made by Mr. Coxeter, of Grafton Street East, London; and is really admirably adapted for keeping the mouth open and the lips apart. The removal of the tonsil is very much facilitated by the use of an instrument of this kind.—*Association Med. Journal*, *July* 13, *1855, p. 649.*

66.—ON CASES OF FEMORAL HERNIA.

By James Spence, Esq., Surgeon to the Royal Infirmary, Edinburgh.

[In many of the cases related by Mr. Spence, from the general symptoms, the tightness of the stricture, the time that had elapsed, the feculent vomiting, the hiccough, and the morbid alteration in the constricted portion itself, we might have expected an unfavourable result, and yet in none did any untoward symptom supervene.]

In a former series of hernia cases, published in the "Monthly Journal," I had occasion to contrast different cases, and to remark on the difficulty of prognosis from the appearance of the constricted portion of intestine; but experience leads me to believe, that examination of the state of the bowel immediately above the constriction may form a criterion. If it be of a pale reddish-grey colour, and feel thick and fleshy, the chances are in favour of a successful result, the constricted portion will be likely to recover itself when replaced.

On the other hand, if the bowel above the constriction be of a bright pink colour, appearing thin and as if distended with air, and bedewed with a clammy exudation,—and if there be a large escape of red or dark-coloured serous fluid from the abdomen on dividing the constriction,—the prognosis is most unfavourable, as indicating that peritonitis has commenced, or that structural alteration is proceeding, in and beyond the constricted portion.

The practice of gently drawing down and examining an inch or two of the bowel above the constriction, is advisable, I think, in all cases where we open the sac, both because it ensures that the constriction is fairly removed, and, by allowing the protrusion to be emptied of its contents, renders its reduction more easy; but it is specially necessary where the constriction has been of long duration, for in such cases perforation not unfrequently occurs from half-an-inch to an inch above the constriction. I have in my possession three preparations showing this state in cases of femoral hernia where the patients died without being operated on, and I need hardly remark what would be the result of returning a portion of bowel either actually perforated or about to sphacelate.

Some of the cases narrated also present individual peculiarities deserving attention. Thus, in one case, we find a condition showing the necessity for constant caution in every case of herniotomy, however simple the case may seem; for here, when the lower part of the sac was opened over the collected fluid, had I, without further examination, attempted to run the bistoury upwards to slit it open, the bowel, from its close adhesion above, would certainly have been injured, and this has actually happened in similar cases.

In another case, the congested lymphatic glands adherent to the sac, and enveloped in the thin, smooth, transparent fascia propria, had very much the appearance of the sac itself. I have met with several such cases where the deep glands were thus closely adherent to the sac; and in all of them where I had to open the sac, I have pursued the plan I adopted in this case, viz. removing the detached portion of the sac together with the adherent glands; because, in such cases, the dissection necessary to expose the sac has generally so injured the vitality of these structures that they are almost certain to slough, or to lead to tedious suppuration, and so I think it best to obviate such consequences by at once removing what would prove a source of irritation, and I have never seen any reason to regret having done so.

In a third case, there was some little obscurity as to the nature of the swelling, as her history of it was by no means clear. She had for years suffered from a large uterine tumour, and was subject to attacks of vomiting and abdominal pain; and as may be supposed from the condition of the hernial tumour, as seen during the operation, its character was not very distinct. It was possible it might be a glandular swelling connected with the uterine disease; and I confess that, during the operation, when I could not trace the continuity of the small swelling up towards the ring in the usual position, I began to suspect such might prove to be the case, especially as I knew of a very similar case where that had been found concurrent with all the symptoms of strangulated hernia. Still, the rule of practice was clear, and accordingly I proceeded, by careful dissection, to make sure of the nature of the smaller tumour.

In a fourth case, the abscess which formed subsequent to the operation, though a serious complication in a person at her advanced age, could scarcely be regarded as a consequence of it; for there were no extensive incisions, nor interference with the parts, during the operation, likely to lead to the formation of matter. Besides, it occurred eighteen days after the operation, and on the opposite side of the abdomen; and although it ultimately partly discharged itself by the wound, that was only owing to the pus meeting with less resistance in that direction, and to the patient's obstinacy in not allowing the abscess to be opened.

In opening the sac in one case, after having reduced a part of its contents, I proceeded upon a principle which I hold as essential to safety in performing the extra-peritoneal operation, viz. that the surgeon should satisfy himself that the sac is fairly emptied of its contents; and that, when any part of the hernia cannot be so reduced, the sac shall be opened to make sure of its condition. For whilst I think that, in recent cases, when we can readily reduce the hernial protrusion without opening the sac, it is well to avoid further interference; on the other hand, I do not apprehend so much danger from opening the sac as some do, and, at all events, it is never to be compared with the risk of leaving any portion of such a hernial protrusion unreduced and unexamined.

Indeed, I think that the dangerous form of peritonitis we meet with in cases of hernia, is most generally antecedent to, rather than consequent on, the operation; and from all I have seen of *post mortem* examinations of such cases, I believe that it depends upon inflammation arising at the constricted part, and thence diffusing itself generally. I have seen fatal peritonitis, from this cause, follow an operation where a recent femoral hernia was reduced with great ease, without opening the sac; and I have at present a case of inguinal hernia, which bears on this point. When first called to see the man, he was labouring under urgent symptoms, depending on a large scrotal hernia, which had been down for twenty-six hours, and had resisted all efforts to reduce it by taxis. I succeeded in reducing it, however, with the aid of chloroform; but this was followed by an attack of acute peritonitis, requiring leeching, calomel, and opium, &c., to subdue it. A few weeks after, when able to go out, he left off the truss for a short time, and the hernia again came down; urgent symptoms supervened, and although I saw him early, all my attempts to reduce it by taxis were vain. I was obliged to operate; and naturally fearing a tendency to peritonitis, and also on account of the size of the swelling, I was anxious to avoid opening the sac; but this I found impossible, as the stricture was evidently in the neck of the sac itself. I therefore opened it, and yet the patient, who is now quite well, never had the slightest symptom of peritonitis after the operation.

Another case was purely omental hernia, which, as its history shows, had slowly progressed from incarceration and congestion to complete strangulation; and the removal of the all but gangrenous mass of omentum seemed to me the safest proceeding, when I considered the little vitality of the fatty texture and the small chance of recovering itself, the great risk of gangrene occurring in and spreading from it, and the consequent danger of inflammation of the omentum, and general peritonitis.

In reflecting on the complications met with in such cases as that of the third case narrated in this series, and which I have so frequently met with in cases of femoral hernia, both in my own operations, and seen while assisting other surgeons, it has always seemed to me, that if one thing was more essential than another to the safe performance of herniotomy, it was that the incisions should be so placed as fairly and fully to expose the structures over the neck and upper part of the protrusion at least, and in small hernia, the whole tumour, whether the sac was to be opened or not, so that the operator might make sure of the removal of all constriction, and of the gradual and complete reduction of the contents of the sac; or, in the event of difficulties occurring, that he might be able to judge of the state of parts and to *see* what he was doing. Accordingly, I have never been able to appreciate the supposed advantages of the plan of operation proposed by Mr. Gay, which has for its avowed object the division of the stricture without exposing any part of the protrusion or its proper coverings, by means of a small incision made at some little distance from its upper and inner side, approaching almost to the *principle of subcutaneous* division of the stricture.

This plan appears to me the most hap-hazard method that can well be imagined; and I confess I was greatly surprised to find from some remarks in a paper by Mr. Ward, that surgeons of such experience in herniotomy as those of the London Hospital, should have adopted it. Professor Fergusson, in his 'Practical Surgery,' likewise eulogises the plan; but any one looking at the direction of the incision, as represented in his work and that of Mr. Gay in the original memoir, will see there is a difference even in that respect; and that he does not carry out the more objectionable principles of Mr. Gay's method is obvious, I think, from what he says when speaking of the question of not opening the sac in hernia: "In many I have found it answer admirably; but in others, even after the stricture had been divided, I have, probably from an old and bad habit, felt that, without opening the sac, I could not be satisfied, and have therefore done so, occasionally with advantage, and never, that I could perceive, with any material difference of hazard to the patient." A safer plan, and one requiring more exposure of the hernia than inculcated by Mr. Gay.—*Edinburgh Med. Journal, Sept.* 1855, *p.* 197.

67.—MODIFIED TREATMENT OF FISTULA IN ANO.

By Dr. Thomas R. Mitchell, Liverpool.

Having lately paid a good deal of attention to diseases of the rectum, I am anxious to direct the notice of the profession to a modification of treatment in the cure of fistula in ano. It is, I believe, an established axiom that in all cases it is necessary to divide the sphincter ani muscle, the usual operation consisting of the introduction of a probe-pointed bistoury as far up as the sinus extends. Others recommend the mere division of the sphincter in a lower situation. Whichever operation is performed, the result is very often a relaxed state of the sphincter for some time afterwards.

In a case on which I operated twelve months ago, the gentleman had considerable difficulty in retaining the bowel up, particularly after violent exercise or defecation. In this case I found that the fibres of the sphincter ani were much relaxed, so much so as to allow the rectum to protrude for several inches, so as very closely to resemble a prolapsed uterus. The constitution began to suffer from the constant discharge of muco-purulent matter, and he was quite incapacitated from following his employment. Having previously emptied the rectum by an aperient, I directed him to force down as much as possible, and then proceeded to touch the tumour with strong nitric acid; this was done with a piece of thin wood, four stripes extending from the upper part of the tumour to the sphincter being made on the surface; the part was then smeared well over with oil, and returned. The operation required to be repeated at the end of ten days, when only about two inches of the rectum could be forced down, and he has since then been able to go about his employment without the slightest inconvenience.

The profession are indebted to the late Dr. Houston, of Dublin, for the introduction of nitric acid in the treatment of vascular tumours of the rectum, many cases of its successful employment being given by him in the twenty-third volume of the 'Dublin Journal of Medical Science.'

Since the above case was treated, I have had several of a similar nature, and the result has been the same. It would, therefore, be unpardonable on me to enlarge further on the subject, particularly as a similar treatment has been adopted very extensively by other surgeons, and is well known to the profession. It, however, struck me that if, instead of the great relaxation of the sphincter which so frequently follows its division, we could cause a constriction as great or nearly so as before the operation, we should be doing good service. Now this I think may be accomplished by a very simple method—employing the nitric acid before the relaxation takes place, or prior to any protrusion; and the plan I adopt, and which I have hitherto found very successful, is to apply the strong nitric acid around the margins of the sphincter ani which have been divided, and this I do on the fourth day after the operation: the pain of its application is quickly removed by smearing the parts over with oil, and it is only necessary to apply it twice.

Before concluding these remarks, I wish to state that I have found patients

labouring under diseases of the rectum particularly difficult to get under the influence of chloroform, and have found the process much facilitated by employing it locally as well as by inspiration, as I have found the parts excessively sensitive even when the patient has apparently been fully under its influence, and when pricking or pinching was unheeded. This, however, I think may be easily explained by the fact of the patient's sufferings having been for some time directed to the part, and to the nerves being in a highly sensitive condition.—*Lancet, Aug.* 4, 1855, *p.* 104.

ORGANS OF URINE AND GENERATION.

68.—ON THE ANATOMY AND PHYSIOLOGY OF THE URINARY ORGANS.

By Dr. Alexander Henry.

Anatomy and Physiology of the Kidney.—The following is an abstract of an able paper by Dr. Robert M'Donnell, of Dublin, published in the 'Glasgow Medical Journal' for October, 1854.

After repeated examinations of the kidneys of man and other mammalia, both in the uninjected state, and injected with materials varying much in consistence, Dr. M'Donnell adopts the description of the vascular apparatus of this organ given by Frerichs ('Die Bright'sche Nierenkrankheit und deren Behandlung, 1851'). This description, which, in all material points, coincides with that given by Bowman and Johnson, runs nearly in these words:—"The manner in which the blood-vessels are distributed, and the mode in which the circulation is carried on in the kidney, are of great importance, in order clearly to comprehend the mechanism of its secretion, as well as the pathogenesis of kidney disease. The renal artery, which is equal in circumference to about one-seventh part of the abdominal aorta, divides, immediately on its entrance into the kidney, into several branches, which pass onwards between the pyramids to the cortical substance; these branches, on their way, give off some small twigs, which furnish capillaries to the straight urinary tubules, and are ultimately lost on the boundary between the medullary and cortical portions, in small vessels, of which a small part only passes into the capillary system of the cortex, while by far the greatest part passes on to and pervades the Malpighian capsules. After entering the capsule, the vessel straightway splits up into from three to five twigs, which, in their tortuous course, fill the capsule, and then again converge into one trunk, which a second time pierces the capsule, generally close to the ingoing (afferent) vessel, and thus passes into a capillary plexus, which forms a network around the urinary tubules of the cortex. The twigs which fill the capsule, and thus form the Malpighian tuft of vessels, are smaller than the ingoing (afferent) vessel, which latter is usually larger than the outgoing (efferent) vessel; but, according to Bowman, this is not always the case. The tuft or glomerulus of little vessels fills the cavity of the capsule, and lies naked in it. I agree with Bowman and Johnson in considering that these vessels are not clothed with epithelium, as Gerlach maintains. The outgoing (efferent) vessels of the Malpighian body form a close anastomosing network around the tortuous urinary tubules of the cortex. These gradually uniting into larger venous trunks, the blood pursues its course to the renal vein, which leaves the kidney as the artery entered it."

Thus it appears that a Malpighian body is constituted by a tuft of vessels lying naked in the dilated termination of a uriniferous tube forming *the capsule*. The small vein by which the blood leaves the Malpighian body can, with the utmost ease, be injected from the artery, as can also the outgoing vein, and the network in which it loses itself. Nay, more, a thin injection, thrown in this direction, flows often without difficulty from the renal vein. But no injection, however fine, had Dr. M'Donnell been able to throw in a retrograde course (that is, from the vein), so as to fill the vessels of the Malpighian body. This fact Bowman explains by the mechanical obstruction offered by the capillary network through which the injected fluid must pass, when thrown in from the vein. This explanation Dr. M'Donnell does not consider satisfactory. He has passed a gentle stream

of water into the artery of a kidney. After a little time, the fluid flowed from the vein deeply coloured with blood. After maintaining this water-circulation for a sufficient time to clear out the contained blood, he has tried to pass the stream of water in by the vein and out by the artery. The kidney swelled to a great size, but even great pressure would not effect an artificial retrograde circulation. He has tried the same experiment with spirits of turpentine, spirit of wine, and other subtile fluids, with almost constantly the same result. He has never succeeded in filling the capsule of the Malpighian body with fluid injected from the pelvis of the kidney, although he has often filled the tubes as far back as the surface. He agrees with Bowman as to the difficulty of effecting this, but not as to its impossibility. Toynbee's assertions seem too circumstantial to be devoid of truth ('Medico-Chirurgical Transactions,' vol. xxix.); and Dr. M'Donnell has in his possession a preparation made by Professor Hyrtl, of Vienna, and thus labelled by that eminent anatomist:—"*Sectio renis hominis, injecta in pelvem renalem materia alba usque in capsulas Malpighianas progressa est.*" The sessile dilatations connected with the tubuli uriniferi, mentioned by Gerlach ('Müller's Archiv.,' 1845), he has never seen.

The following account may be given of the circulation in the kidney:—A stream of blood is directed to the kidney through an artery, very large in proportion to the size of the organ, and with considerable force. The blood passes through a double system of capillary vessels; first, in the corpora Malpighii; secondly, in the anastomosing network on the walls of the uriniferous tubes; and ultimately makes its exit by a large venous trunk—the renal vein—which joins the ascending cava some way below the hepatic veins. The renal vein, at its junction with the cava ascendens, is often guarded by a valvular apparatus, which is met with very frequently, if not constantly, in the horse, and sheep, and occasionally in man. This valve prevents, more or less completely, a regurgitation of venous blood from the cava to the kidney, and consequent venous congestion of that organ; an occurrence which must otherwise readily take place from valvular disease of the heart, or any other lesion retarding the venous circulation.

It may be supposed that, while the stream of blood is flowing in its normal course along the cava ascendens towards the heart, these valves prevent the blood of the extremities from entering the renal veins; but that, if a current pass down the cava ascendens, this valvular apparatus, by flapping out towards the middle of the cava, would favour the passage of the venous blood into the mouths of the renal veins. The examination of the valve in the recent state is sufficient to refute at once any such idea. The fineness and delicacy of the membrane composing the valve is such, that any current, however feeble, entering the mouth of the renal vein, must carry the membrane with it, and so close, or help to close its orifice. The presence or absence of this valvular apparatus must be of importance in the consideration of renal disease, its deficiency no doubt predisposing to congestion, and consequent chronic disease of the kidney.

According to Bernard ("Archives Générales de Médecine," vol. xxiii.), there exist channels of anastomosis between the vena portæ and the cava ascendens, which enter the cava behind the liver, and at the lower part of that portion of the cava which lies in contact with the liver. During digestion, the greater part of the portal blood, coming from the intestines, enters the liver, there to be purified. Part, however, of the portal stream passes through the anastomosing channels directly into the vena cava ascendens; and this must likewise be purified by glandular action. Bernard, therefore, asserts that "There exists in that portion of the inferior cava which lies behind, and is below the orifices of the hepatic veins, a muscular coat of considerable thickness, the contractions of which cause the cava and renal veins to pulsate during digestions, the pulsations not being synchronous with those of the heart. In addition to this muscularity, the inferior cava of the horse presents two valves, attached to its wall immediately below the orifices of the renal veins. Now, the consequences of this arrangement are as follows:—During digestion, the liver becomes congested, the portal blood regurgitates, and would stagnate but for the existence of channels enabling it to pass into the inferior cava below the orifices of the hepatic veins. The blood thus diverted is not permitted at once to mingle with the general circulation, before being submitted to glandular action. The muscular coat of the inferior cava con-

tracts and greatly diminishes its channel; the impeded blood is thus thrown backwards on that ascending from the limbs, but the valves below the orifices of the renal veins prohibit further regurgitation, and it is compelled to flow off right and left by the renal veins to the kidneys, which eliminate from it such materials as are excessive and pernicious; and so the *urina cibi* is constituted. Meanwhile the order of the circulation is interrupted by the arrest of the blood ascending from the lower limbs, in consequence of the closure of the valves below the renal veins; but this disturbance is provided for by the existence of the vena azygos which receives the impeded blood, and conveys it to the superior cava.

There is no doubt that, in man and many other animals especially the horse, the coats of the vena cava become greatly thickened where this vessel is in contact with the posterior part of the liver. This thickening is chiefly composed of condensed fibrous tissue, with abundance of yellow elastic fibres intermingled. It varies much in thickness in different horses; and soon after death it contracts, so as to throw the lining membrane of the vein into longitudinal folds.

An examination of the valvular apparatus in the horse, or, perhaps better, in the sheep, will be sufficient to convince the observer that it is not adequate to perform the function assigned to it by Bernard. Dr. M'Donnell has injected with saturated solution of bichromate of potash and acetate of lead, thrown in one immediately after the other, the vena cava of a rabbit, from below towards the heart, having tied the vessel above the diaphragm. The injection, which passed readily into the liver so as at once to make it quite yellow, frequently did not make its way to the kidney at all; and when it did, it was found more rarely in the left than in the right. The same result followed when the fluids were thrown down the cava from the heart.

In repeating these experiments, Dr. M'Donnell has not always succeeded in obtaining the same results as Bernard. When cyanide of potassium, mixed with carbonate of soda, is introduced into the stomach, the urine presents a blue colour on the addition of a salt of iron, and the salt is found in large quantities in the blood of the renal veins, while there is scarcely a trace in the jugulars. Dr. M'Donnell finds that the animal dies in a few minutes, if the solution be strong; and if it be sufficiently weak not to kill at once, the amount is too small to be detected in the blood. In the second experiment, a solution of cyanide of potassium in the proportion of 20 parts of the salt to 100 of water, was thrown into the mesenteric vein of a rabbit. The urine in a few minutes contained a large quantity of the salt, but the animal suffered no inconvenience from its presence in the portal blood. When, however, a solution containing two parts of the salt to 100 of water was thrown into the jugular vein, the animal died in a few minutes, before the slightest trace of the poison could be detected in the urine. Dr. M'Donnell has found the weak solution of cyanide of potassium (2 per cent.) equally fatal, whether injected into the jugular or mesenteric vein, in rabbits operated on, both when fasting and during digestion, producing death in from four to ten minutes. When prussiate of potash and lactate of iron solutions are thrown into the subcutaneous cellular tissue, in different parts of the same animal, a blue colour is soon observed at the seat of the iron injection, becoming very marked in the course of half an hour, and the urine is found to contain prussiate of potash abundantly. If at the end of half an hour the animal be killed, and some of the serum of the blood, of the urine, and of the bile, be tested with solution of lactate of iron, a great abundance of prussiate of potash is detected in the urine, much less in the serum, and none in the bile. If, also, a drop of the iron solution be applied to the cut surface of the lung, liver, pancreas, parotid gland, and kidney, while in all of these organs traces of the prussiate are discovered, the kidney alone becomes of a deep blue colour. The same test shows a trace of the prussiate of potash at the pyloric extremity of the stomach, before any can be detected in the duodenum, ileum, or cæcum. This experiment merely proves the *elective* power that the kidney exercises. When prussiate of potash is introduced into the blood by the way mentioned, it pervades the whole of the circulating fluid, and is laid hold of by the kidney for elimination. When, however, a solution of lactate of iron is thrown into the subcutaneous cellular tissue on the back of a rabbit, and a solution of prussiate of potash introduced into the stomach, no blue colouring occurs at the *seat of the iron injection*; nor on killing the animal at the end of half an hour is

any prussiate of potash to be detected in the serum of the blood; the urine contains the salt but sparingly, and neither the kidney nor any other organ exhibits the least tinge of blue on the application of the solution of lactate of iron. The same was the result when the animals so treated were allowed to survive many hours.

This experiment does not seem to prove that the prussiate of potash absorbed by the stomach, and thus entering the portal blood, was got rid of through the *hepatico-renal* circulation; for once absorbed into the blood of the portal system, assuming for a moment the truth of Bernard's theory, the greater part of it would pass on through the liver, and thus enter the general circulation. The fact seems to be, that the yellow prussiate of potash, when taken into the stomach, is not absorbed into the system so rapidly as when injected into the subcutaneous cellular tissue.

Robinson's ('Medico-Chirurgical Transactions,' second series, vol. viii. p. 56) experiments "illustrating the effects of venous obstruction on the kidney and its secretion," which have been repeated and confirmed by Frerichs ('Die Bright'sche Nierenkrankheit,' p. 276), prove that not only does bloody or albuminous urine in all cases follow such obstruction, but that, as a consequence, the kidney enlarges rapidly to a great size. Thus, in the greater number of the cases in which he applied a ligature to the renal vein in rabbits, bloody or albuminous urine immediately resulted; and on killing the animals, in from ten minutes to half an hour, the kidney of the side operated on was found to weigh *twice* as much as the sound one. Frerichs states that, in an old rabbit in which the left renal vein was tied, after twelve hours the urine was found bloody and highly albuminous, the left kidney was found more than double the weight of the right, and the urinary tubules were filled with blood. An increased supply of arterial blood does not, according to these physiologists, give rise to these consequences in so marked a degree as venous congestion. After applying a ligature to the aorta, immediately below the origin of the renal arteries, Frerichs says, "only in a few such cases could I discover traces of albumen. The extirpation of a kidney (which causes a determination of blood to the other), produces this result in a very slight degree. The kidney may, after the course of ten days, double its weight; but albuminuria does not follow."

Dr. M'Donnell judiciously observes that, in treating of the diseases of the kidney, it should always be borne in mind that albuminuria is not a disease, but a symptom—a symptom which, independently altogether of any *organic* affection of the kidney, may result from particular conditions of the blood and its albumen. Kierulf has shown that considerable dilution of the blood with water is followed by the secretion of albuminous urine. Vogel has observed that the respiration of arseniuretted hydrogen gas causes the flow of dark-coloured urine containing albumen; and Bernard has proved that the kidney has the power of selecting for elimination albumen thrown into the veins of the neck, and which, consequently, has not been so assimilated as to suit it to be retained in the system. No doubt venous congestion is in many cases the starting point of chronic renal disease, accompanied by albuminuria, with deficiency of the normal salts of the urine, and especially of urea; and many of the alarming symptoms met with in such disease are due to retention of urea in the blood. Hence much practical importance is to be attached to the researches of Bernard and Barreswil, regarding the mode of elimination of urea after extirpation of the kidneys, from which they conclude that the urea is got rid of by the secretions of the intestinal canal, and chiefly as an ammoniacal salt in the gastric fluid after such extirpation. This is a fact, which not only explains in some degree the tendency to gastric irritation and diarrhœa in Bright's disease, but also suggests an idea concerning the treatment of threatened uræmic poisoning, which is well worthy of attention.

Influence on the Urine of the Drinking of Beer and Water.—Boecker ('Archiv. für gem. Arb.' 1851, I.) makes some comparative observations. After the use of beer, the quantity of urine was diminished, both in relation to the average quantity of beer drunk during twenty-four hours, and especially in comparison to experiments with water; this is observed with regard to beer chiefly in winter; but in the summer also the quantity of urine, after moderate ingestion of water, far exceeds the quantity drunk. The quantity of urine, under similar circumstances of food and drink, differs remarkably on different days, especially afer drinking beer; for example, 2,631 *grammes* of beer *produced* 3,433 *grammes* of urine, and 3,980

grammes of beer produced 2,944 *grammes* of urine. In the drinking of beer, 187 *grammes* more of solid matters are taken into the system than after drinking water, and yet we find only four *grammes* more of solid matter in the *excreta* than in the latter case. After drinking beer, the increase of urine is only at a minimum. The quantity of the sensible products of perspiration appears somewhat diminished after drinking beer; and, after the same beverage, the quantity of uric acid is constantly increased. The salts, especially the incombustible, are increased by giving food at the same time; but under deprivation of food they are diminished as much as 5½ *grammes*, although on an average 4,052 *grammes* more salts have been taken into the organism with beer than with water. Chloride of sodium is increased (about 3 *grammes*) after taking beer, though that fluid has contained none of the salt. In Boecker's experiments, the water contained no sulphates except a little sulphate of lime, while this class of salts were contained in large quantity in the beer; yet a considerably smaller quantity of sulphates were excreted in the urine after taking beer than after drinking water. As a part of the sulphates probably proceeds from the destruction of the protein compounds, Boecker is inclined to see in this diminution of the excretion of sulphates a retardation of it by the beer of the change of the protein matters; a view which is supported by the comparatively small excretion of urea. The phosphates, which, as such, are now introduced into the system when water is drunk, but are taken in in some quantity when beer is used, appear in the latter case to be increased, though the quantity excreted does not equal that which has been introduced with the beer. When beer is drunk, more phosphate of magnesia and less phosphate of lime passes into the urine; yet only about the tenth part of the first-named salt which has been taken with the beer appears in the urine. Potash is taken in in unequally large quantities with beer; it is also increased in the urine, but not in proportion to the quantity taken in. Some influence on the metamorphosis of the tissues must be ascribed to beer, as almost all the products are either absolutely or relatively diminished in urine: chloride of sodium is an apparent, urea a doubtful exception.

The quantity of carbonic acid excreted by the lungs is also diminished by drinking beer; it diminished from an average of 4·10 per cent. to 3·80 per cent. of the expired air.

Boecker has also examined the proportion of solid constituents and of water in three young healthy men; he found an increase of the solid constituents, both in the corpuscles, the serum, and the fibrin. ('Prager Vierteljahrschrift,' 1855, vol. ii.)

Action of Liquor Potassæ on the Urine.—The action of liquor potassæ on the urine in health and in certain diseased states has been investigated by Dr. E. A. Parkes ('British and Foreign Medico-Chirurgical Review,' January, 1853). We shall now give an abstract of his experiments in the healthy state of the urine.

The experiments were performed on a healthy individual, aged 33. Dr. Parkes first examined the effect produced on the sulphuric acid of the urine; the food taken being ordinary mixed diet. The following are the averages obtained from the observations made.

1. *Urine secreted during the night, and passed in the morning.*

Average amount per hour (mean of 155 hours), ℥ i. ℥vj. ℈vij.

Average of solids in 1000 parts (38 observations), 37·27.

Average of sulphuric acid in 1000 parts (42 observations), 1·4608.

2. *Urine secreted during twenty-four hours.*

Average amount in twenty-four hours (18 days' observations), ℥ xxxix. ℥vij.

Average per hour, ℥ i. ℥v. ℈i.

Average of solids in 1000 parts (16 observations), 35·41.

Average of sulphuric acid in 1000 parts (16 observations), 1·199.

The amount of sulphuric acid bore no relation to the amount of solids. A very concentrated urine contained more solids and more sulphuric acid than a very dilute urine; but beyond this no rule could be laid down. Sometimes the solids were in great quantity (48·21 per 1000), and the sulphuric acid in small quantity (0·991 in 1000); sometimes the solids were only 23·55 per 1000, and the sulphuric acid 1·306.

Certain circumstances had an influence on the excretion of sulphuric acid.

1. Time of year. The average of sulphuric acid in the urine was apparently

greater in the cold months (March and April) than in the hot months (July and August); in the former, amounting to from 1·434 to 1·7; in the latter, from 1·170 to 1·24. The quantity passed, however, in twenty-four hours was nearly the same. In April, three observations on the urine of twenty-four hours, showed the average flow to be 39 oz.; and the average sulphuric acid 26·78 grains. In five experiments in August, the average flow was 44¼ oz.; and the sulphuric acid nearly 24 grains.

2. *Time of day.* During the night, the average amount both of water, of solids, and of sulphuric acid (especially of sulphuric acid), was greater than in the urine of twenty-four hours. This occurred when the heartiest meals in the day were taken in the evening; but when, on eight occasions, the principal meal was taken at 2 P.M., the average amount of sulphuric acid in the night's urine was 1·196 per 1000, or precisely the average of twenty-four hours.

3. *Exercise.* The amount of sulphuric acid was increased by exercise; and the effect lasted a considerable time—at least thirteen or fourteen hours.

4. *Food.* The increase in the sulphuric acid after food was perceptible in two hours, and continued to increase for four or five or six hours, after which it fell. Dr. Parkes states that the increase appeared more marked after meat than after bread; this is opposed to the experiments of Dr. Bence Jones. The effect of food and violent exercise together was to cause a great excretion of sulphuric acid, amounting on one occasion to 3·342 in 1000.

5. *Excess of liquids.* The experiments on this point were not sufficiently numerous. When from twenty to thirty ounces of weak tea were taken beyond what the system required, there was an inconsiderable increase of the sulphuric acid.

Having thus examined the variations in the sulphuric acid, Dr. Parkes investigated the effect of liquor potassæ on the water, sulphuric acid, solids, and on the acidity of the urine. Eleven experiments were made: the dose of liquor potassæ being in one experiment, ℥ss; in seven, ℥i; and in three, ℥ij. In six experiments, a large quantity of urine was passed within two hours after the potash was taken; in the other five experiments, this effect was not produced. The large flow of urine followed the introduction of liquor potassæ into an empty stomach; but when it was taken from three to five hours after food, it probably entered into combination with the free acids present in the stomach—the resulting salts then producing their own action, and not that of liquor potassæ. The average quantity passed per hour when liquor potassæ was taken, in six observations, was ℥v. ℥vi.; when no potash was taken, ℥i. ℥vi.; the highest single observation (of 600) when no potash and an ordinary amount of fluid was taken, ℥iij. ℥ij. In five out of the six observations, the urine had a faint acid reaction.

In any given quantity of urine thus increased, the amount of solids and sulphuric acid were greatly below the average; but the actual amount of sulphuric acid was increased, while that of the solids was decreased. In an average of six observations after taking liquor potassæ, there were excreted of

Water, 140 oz. or 100 oz. 3 drs. above the normal average.

Solids, 597·16, or 80·68 grains below the normal average.

Sulphuric acid, 32·341, or 9·491 grs. above the normal average.

From an examination of the solids in two experiments, the following results were obtained: there was no uric acid; urea was in small amount; there was a large amount of extractives, soluble after evaporation in water, alcohol, or acetic acid. The ratio of fixed saline matters to the organic matter was extremely large, and sulphate of potash and chloride of sodium constituted the chief proportion. Phosphoric acid was in moderate amount. Although the proportion of chlorine to the solid was relatively large, it did not appear to be absolutely increased.

Dr. Parkes thus sums up the effect produced by liquor potassæ on the healthy body.

"If this remedy is taken soon after meals, its action is that of an antacid. It combines with hydrochloric or with lactic acid, and then, doubtless, passes into the circulation. What appreciable effect it now produces is not indicated in the tables above given, but it does not increase either the water, solids, or sulphuric acid of the urine. If the liquor *potassæ* be taken into an empty stomach, it passes unneutralised *into the circulation, and* probably through the veins; in so doing it

must produce an effect on the walls of the capillaries and small veins, but the extent of this cannot be known. As much as ℥ij. have been taken with only four ounces of water, without causing epigastric pain or uneasiness (although it produced considerable temporary scalding of the mouth and throat), and without apparently producing any local effects in the stomach. In usually from thirty to ninety minutes after its entrance into the circulation, an increased flow of slightly acid urine occurs, which contains the whole of the potash, organic matter differing considerably from that of ordinary urine, and a relatively large proportion of sulphuric acid; the phosphoric acid and the chlorine are less changed. Perhaps an organic acid (not uric, and probably not hippuric) is also present. The explanation of these facts, is, that an albuminous compound, either in the blood itself or in the textures, has become oxidized; its sulphur, under the form of sulphuric acid, has united with potash, and with possibly the changed protein-compound, is poured out from the kidneys. This oxidizing effect of the liquor potassæ is no doubt assisted by exercise and by copious draughts of water; but in the above experiments, exercise and fluid were abstained from, in order not to complicate the results. The amount of albumen or fibrine destroyed by one drachm of liquor potassæ cannot be considerable, but if the potash were continued in large quantities, oxidation could probably be pushed to any amount. The nitrate and acetate of potash did not in a *healthy system* have the same effects.

"After the increased flow of urine, the quantity passed per hour falls slightly below the standard. It appears to resume its ordinary composition, but its exact condition at this period has not been determined. Some observations on urine in disease would lead me to infer that the uric acid will be found to be increased.

"Such were the effects of liquor potassæ on the urine. The effect produced on other excretions was not obvious. The skin and the intestines appeared quite unaffected, and as all the potash was found in the urine, the reason of this is easily understood. In most of the experiments there were no subjective symptoms of any kind. On two occasions, there was rather sharp frontal headache, languor, depression, slight lumbar pain, and aching of the legs, after the large flow of urine. On the night of the 15th, when the flow of urine, which was proceeding at the rate of ℥ iss. per hour, was augmented in two hours and a half by ℥ xiv., and no fluid was supplied to the system, the pulse became perceptibly small (almost thready) and slow; it remained equal and regular—there was no thirst, no shivering, and no nausea; the skin was dry and warm. In six hours the pulse had quite regained its force and frequency, and the other symptoms had disappeared without any fluid having been taken.

"After the experiments were concluded, the general health did not appear impaired; it was, if anything, better than usual."

The experiments of Dr. Parkes on the action of liquor potassæ on urine in diseased states we shall refer to in speaking of the Pathology of the Urinary System.

Formation of the Acid Sediments in Urine.—Zimmermann, in his *Archiv.*, makes the following remarks on the formation of acid deposits in the urine:

The free acid, which is the cause of deposits in urine, is neither acetic nor lactic, but oxalic; hence lime has a more important part than has hitherto been assigned to it, as a base for uric and oxalic acid. The author speaks first of the spontaneous urinary sediment. He saw it in specimens of urine, the specific gravity of which varied from 1·0158 to 1·0320, and in which muriatic acid separated at last ·533 per cent. of uric acid. A certain high specific gravity is necessary for the uric acid to be deposited in an amorphous shape. Turbid urine becomes clear by dilution with water; and if urine, which would not otherwise form a sediment, is evaporated to one half or even less, urates and phosphates are deposited on cooling. The addition of such salts as chloride of sodium, sal ammoniac, saltpetre, and sulphate of potash, promotes the formation of a sediment; but the sulphate of soda and magnesia, according to Zimmermann, prevent the deposition of urates, apparently by being retained in solution.

Cooling of the urine is so important a condition to the formation of a sediment, that when urine becomes turbid before it has cooled to the temperature of the room, it may be concluded that it has a neutral or an alkaline reaction, and that the sediment contains phosphates. On cooling to 43·5 Fahrenheit, a lateritious sediment may be formed in many specimens of urine, although they do not contain

5 per cent. of urates. When urine, which has become turbid by cooling, is heated to 120 Fahrenheit, and then allowed to cool again, the highest temperature can be generally found at which the sediment begins to be deposited afresh. But under these circumstances, urica cid crystals are not again separated: a sign that a new acid has been formed.

When urates abound in urine, a very small quantity of acetic acid will produce turbidity; such urine becomes clear on heating and again turbid on cooling. On a further addition of acetic acid, crystals of uric acid are deposited. When urine of this kind is diluted with water, the addition of acid causes no turbidity; which proves that a certain richness in urates is necessary for the formation of a sediment. Lactic, oxalic, phosphoric, nitric, and hydrochloric acids, act in the same way as acetic acid; they all produce, under certain circumstances, the separation of free uric acid. When urine is rendered turbid by a large amount of acids, small quantities produce the same effect; but the converse does not take place. Zimmermann has endeavoured to show that, although a sediment is formed more rapidly after the addition of oxalic than acetic acid, yet no crystals of oxalate of lime are formed, or only when the fluid is also boiled. The free acid formed in urine Zimmermann regards as oxalic acid, not as acetic or lactic, since the presence of matters from which these can be formed cannot be detected; while uric acid, from which oxalic acid can be formed, is always present. Zimmermann placed uric acid crystals in saline waters; after a time, he found numerous crystals of oxalate of lime. In the lateritious sediment, numerous crystals of oxalate of lime are found; from which it may be concluded that they are first formed after the base has been set free from other combinations, and when the acid has proceeded from another constituent of the urine. If these crystals are not found in this urine, it is either because the urine contains no oxalate of lime, or because this salt does not always crystallise in the ordinary form.

In relation to the development of free acid in the urine, Zimmermann, partly in contradiction to Scherer, makes the following observations. When to urine which became spontaneously turbid, and was also rendered so by hydrochloric acid, he added alcohol, and then acetic acid, the fluid remained clear, and deposited uric acid crystals sparingly. The same occurred when two *grammes* (half a drachm) of urate of potash were dissolved in 500 *grammes* of water; while hydrochloric acid rendered one portion turbid, the other, which had been mixed with alcohol, remained clear. Zimmermann explains this action of alcohol in preventing the separation of uric acid or water, by supposing that it acts as a solvent on part of the soluble constituents of the urine, and that thus a greater quantity of water is available for the solution of the urates.

The influence of saline substances on the separation of the urates is small in proportion as the temperature is high. Zimmermann finds oxalate of lime in the amorphous lateritious sediment before the formation of uric acid has commenced; and the oxalates increase enormously as the uric acid appears. Hence he concludes that the free acid which is formed is oxalic acid. He believes that just so much oxalic acid is formed as corresponds to the lime present; for in the fluid filtered from urine which has deposited a sediment, no oxalic acid is perceptible.

It has to be ascertained (and for this purpose Zimmermann proposes a solution of carbonate of lime) whether, by the addition of a neutral salt of lime to urine which has deposited a sediment of crystals of oxalate of lime and uric acid, the uric acid which is present can be gradually oxidised into oxalic acid; and, further, what are the changes through which uric acid passes, when it is changed into oxalic acid in calcareous saline waters, whether the lime plays an important part, or whether uric acid, combined with other bases, can become oxalic acid in distilled water. The frequent absence of the oxalate of lime in the sediment Zimmermann regards as no proof that his view is incorrect; because, 1. He has not detected it, even when he formed a sediment in urine with oxalic acid; 2. Urate of lime may sometimes be wanting; 3. Circumstances may prevent the crystallisation of the oxalate of lime.

The formation of sediment has importance in regard to the *crises* of disease. Zimmermann asserts that only the *critical* urine is liable to fermentation, while ordinary urine is not so.

If the urine is rendered *slightly turbid* by the addition of a large quantity of

acid, it contains at least 4·33 per cent. of uric acid; if it becomes very turbid, it contains at least 8 per cent. The precipitation of uric acid from urine rich in this acid can be prevented by the addition of certain materials, as alcohol, as well as by matters peculiar to the urine. The disturbance of the urine by hydrochloric acid does not correspond with the spontaneous formation of a sediment: the urine of a patient with pneumonia, containing 1·4 per cent. of uric acid, became very thick on the addition of hydrochloric acid, but deposited no sediment, even after it had been allowed to remain in the cold all night.

Zimmermann further speaks against the idea that urea is formed from uric acid, or rather that uric acid is a necessary preliminary stage of urea, and that, by a somewhat higher oxidation of the albuminous tissues, it is changed into urea. Like others, he does not understand how, even in diseases where the respiration is impeded, there should not be sufficient oxygen to fully oxidate the small quantity of uric acid into urea.

In relation to the connexion between the function of the spleen, and the formation of uric acid (which has been rendered probable by Scherer's discovery of uric acid and hypoxanthin in the spleen) Zimmermann observes that, according to his observations of ague cases, the formation of uric acid is smaller in them than in persons with healthy spleen (as in cases of pneumonia); and further, that in intermittent fever the quantity of uric acid increases after the paroxysm has been cut short. Both these facts speak in favour of the action of the spleen in the formation of uric acid. The quantity of uric acid also diminishes in relapses, when the splenic tumour or other anatomical changes in the spleen appear. To this view are opposed many cases of leucæmia, in which at least there is an increase of the uric acid precipitate; thus Zimmermann cites a case under his care of hypertrophy of the heart and spleen, with induration and suppuration of many of the lymphatic glands, in which he observed a remarkable amount of sediment in colourless urine. ('Prager Vierteljahrschrift,' 1855, vol. ii.)

Fat in the Urine.—Mettenheimer ('Archiv. fur. wissensch. Heilkunde,' vol. i., sect. 3) has observed fluid fat in the urine in two cases where the patients had for some time been taking oleaginous medicines. Very conspicuous large drops of fat floated on the urine, and he removed spots of fat on paper. The first case was that of a man suffering from cancer of the lung, with great dyspnœa, who had been taking twice daily for several days two tablespoonfuls of cod-liver oil, with tincture of iodine. The subject of the second case was a woman, aged 54, who was suffering from a tumour in the loins. Her urine was high coloured, and contained albumen, blood-corpuscles, and pus-globules; when the fat appeared in the urine, she was using an emulsion of hempseed, and rubbing in ointment. Mettenheimer and another healthy man took in the evening several ounces of a fatty emulsion, but observed no fat in their urine in the morning; the fluid was, however, high-coloured, and turbid, with fine particles held in suspension, the nature of which does not appear to have been investigated. Cutaneous inunction in no case produced fatty urine. ('Prager Vierteljahrschrift,' 1855, vol. i.)—*Association Med. Journal, July* 6, 1855, *p.* 627.

69.—LITHOTOMY SIMPLIFIED.

By George Allarton, Esq., Sydenham.

[In our last volume we presented our readers with Mr. Allarton's account of his mode of operation. Many objections have been raised to this operation, such as a too extensive division of the membranous portion of the urethra; slipping of the knife into the rectum; rough and too rapid digital dilatation; tearing the membranous urethra by the forceps or stone. In answer to these, Mr. Allarton says]

De Borsa merely cut down upon the staff, *from the bulb downwards*,, and then introduced his finger along the staff into the bladder. It is obvious that in doing this he risked wounding the rectum and bursting the prostate by the wedge-like action communicated to the staff by the pressure of the finger. I *cut up to the staff*, having the *back* of the knife to the rectum, and the forefinger of the left hand *in the rectum, with its* point resting in contact with the staff as it passes through *the prostate. I* can thus direct the knife with the greatest nicety to the spot I

wish to strike. Having done this, I slit the membranous urethra *up*, and then withdraw the knife, cutting *upwards* as I withdraw it, and thus complete the wound at one introduction of the knife, which occupies less time to do than to describe. I then pass a long probe into the bladder, guided by the staff, and remove the latter. The remainder of the operation is merely the extraction of the stone, which, when of moderate size, gives no trouble, for it follows the finger into the wound, and may be removed without forceps. The smaller of the two calculi accompanying this letter came into the wound, and could have been extracted with the finger and thumb; the larger one presented itself at the wound, but required traction to remove it. As to the urethra being torn from the prostate, or the latter from the neck of the bladder, such could only be done by the most unjustifiable blundering and *forcible traction;* it could *not be done by dilatation*, for each part would be equally stretched, and would rather tend to approximate than to separate. As to my quotation of the *mortality* of the lateral operation from Mr. Coulson, it is amply borne out by the assertions of Sir B. Brodie and Mr. Skey, the former giving 1 in 5½, and the latter 1 in 5. As to the probable mortality in the *simplified median*, experience will have to decide, as up to the present time it has been, I believe, uniformly successful.

I think I may therefore fairly conclude that an operation which has been hitherto successful, which enables a patient to retain or pass his urine by the urethra, almost immediately after its performance, which does not confine him many hours to his bed or to his house, which gives little pain to the patient, and less anxiety to the surgeon,—I say I think I may fairly conclude that such an operation will bear comparison with one which is fatal in 1 out of 5 cases, which causes the patient to lie bathed in his urine day after day, and takes from two to four weeks in getting about; to say nothing of its difficulties and dangers, which are so great that Sir B. Brodie remarks—"The danger and difficulty of lithotomy are so great, that no surgeon would willingly, nor otherwise than as a matter of duty, undertake it;" and Mr. Solly says, after an experience of some thirty-two years in hospital and private practice, "There is no operation in surgery equal to lithotomy in the difficulty of its performance or the uncertainty of its result."

As regards *chloroform*, I am again misunderstood. I object to its use as *unnecessary*, because the pain is not great, and there is always *risk of pinching or tearing the coats of the bladder* in extracting the stone, which I feel convinced is often a cause of death.

As to the patient's assistance being necessary to us, *we have that under the influence of chloroform, as in labour*, the only difference is that we cannot *command an additional amount* of straining when we think it desirable.

Now for the last, but the reviewer's principal objection—*dilatation*. He says, "We have no particular predilection for incising the prostate, but we carry the knife contentedly into the gland, being fully convinced that dilating it to the requisite extent would, in every respect, be a much more serious measure." Has the reviewer ever seriously considered the real bearing of his remark? Why, in the lateral as in the median operation, *we must have a certain aperture* through which to drag the calculus; and this must be, the stones being equal, the same in each operation, and this aperture *must be through the prostate gland*. Now, I will ask him, which he thinks the safer method—making a hole an inch or an inch and a half in diameter in the urethral centre of the prostate by gentle dilatation, or incising one side of the prostate, and then dilating the incision to an inch or an inch and a half in diameter, or from three to four inches and a half in circumference? He could *but* have *the same aperture for the same stone*, and in distending this incision (one end of which is close to the out-side of the prostate) with the forceps, having the stone in its grasp, can he for a moment suppose that he does not burst the left side of the prostate, and even tear the neck of the bladder? Suppose even that he *could* incise one side of the prostate *two inches*, to dilate that incision would only form a circular hole of eight lines in diameter, or two-thirds of an inch. Now it is obvious that this would not allow a stone an inch and a half in diameter to pass; and the left side of the prostate being *almost divided*, to obtain the necessary amount of dilatation, must tear through the prostate and neck of the bladder. *Here is the great fatality of the lateral operation! Dilatation you must have.* Then commence *that dilatation in* the urethral centre of the prostate, and

you have plenty of gland all round to protect. In my pamphlet I have simply *recorded facts;* I say, *let them be put to the test, and not merely denied.* I will abide the result. Mr. Hinton has already tested the operation with great success; and I must refer your readers to his case in the 'Association Journal' of about three weeks back. Every case, as yet, has been out and about in *two or three days*, and until I hear of reverses "In medio tutissimus *ibo*."—*Lancet, May* 26, 1855, *p.* 544.

70.—*Case of Lithotomy; Operation in the Median Line.* By JOSEPH HINTON, Esq.—About three weeks since, assisted by my friend, Mr. Scott, of Newport, and my own assistant, I proceeded to operate after the plan laid down by Mr. Allarton. Although, on sounding him in the morning, I had plainly felt the stone, and he himself distinctly heard the sound strike it, we could not detect it when he was placed on the table previous to operating. The injection of a little water removed the difficulty. The perineum was exceedingly deep; and, on piercing it in the median line, I feared that I must have missed the groove, and accordingly I withdrew the knife, and explored the wound with my finger. I found that the staff had not been reached; this was immediately done, and the incision completed. The urethra being opened, no water escaped. On the first introduction of my finger as a dilator, I immediately felt the stone, but it appeared so small that I could not believe it to be the only cause of his distress. Accordingly, I did not wait to remove it, but proceeded with my efforts at dilatation; in a very short time I found the calculus in the wound, and with one finger in the wound, and the other index finger in the rectum, tilting up the calculus, it was removed without any employment of the forceps. The stone was round, and of about the size of a small horse-bean. The amount of blood lost during the operation was trifling. No other stone could be detected. A sponge was now applied to the wound, and retained in position by a bandage.

To detail the daily progress of the case would be tedious and without any practical importance. When the patient first passed urine after the operation, a few drops escaped by the urethra; but in less than forty-eight hours this was reversed, and he retained the urine for four or five hours—longer, in fact, than he had done for months. On the third day I allowed him to get up and have his clothes on. The wound appeared almost healed; in fact, he considered himself well. On the subsequent day to the operation he appeared slightly feverish, but this passed off almost immediately. In a few days, he brought over to my surgery the bandages; and he appeared perfectly well.—*Association Med. Journal, April* 6, 1855, *p.* 318.

71.—ON OBSTRUCTIONS IN THE URETHRA ANTERIOR TO THE PROSTATE GLAND, CAUSING RETENTION OF URINE.

By HENRY THOMPSON, Esq., M.B., Honorary Surgeon to the Marylebone Infirmary.

The chief cause of urinary retention, in a very large proportion of the cases which occur in hospital practice, is the existence of a certain degree of permanent or organic narrowing of the urethra, by no means therefore always considerable, but which is temporarily aggravated by the supervening of two conditions, either of which may be present alone or concurrently with the other. These conditions are inflammatory congestion and undue muscular contraction. They may occur, but much more rarely, in the absence of any organic constriction of the canal, as they do in some few instances in connexion with other excretory outlets of the body, such outlets being, by virtue of their position, exposed to various sources of injury causing inflammation; and being all invariably guarded by muscular apparatus, are consequently liable also to the effect of abnormal action on the part of that tissue. We are familiar with the first-named condition, that of inflammatory congestion, when it occurs at the anal extremity of the rectum, as congestion of the hemorrhoidal vessels, constituting a fit of the piles, as it is termed; and with the latter condition, or that of undue muscular contraction at the same *spot, as spasm of* the sphincter ani. Again, we recognise at the rima glottidis, or

respiratory outlet, inflammatory congestion causing fatal occlusion by its resulting œdema; and undue muscular contraction at the same point as closing the aperture, always to a dangerous and sometimes to a fatal extent, in various lesions of the laryngeal or associated nerves, or of the nervous centres themselves. Precisely similar to these actions are those which, temporarily occluding the urethral canal by their own agency alone in not very numerous instances, are doubly liable to produce their effect when any degree of organic stricture has previously existed.

Now it is very obvious that the method to be adopted in order to relieve the patient from the effect of obstruction, in any one of the different instances referred to, must depend greatly upon what may be the immediate effect of absolute occlusion of the passage, whatever that may be. Thus in the case of occluded rima glottidis, on the one hand, we know that death must inevitably result from the shortest delay or hesitation to afford immediate relief, and we at once make an artificial opening at some point in the passage below; on the other hand, when the lower extremity of the intestinal canal is closed, or nearly so, by either inflammation or spasm, we can scarcely be said to take into account the result in relation to the retention of the fæcal contents, but regard the local distress as the main thing to be alleviated, and accordingly we accomplish this indication by means of a far less active character than in the former instance. And hence, perhaps, we may scarcely at first sight recognise the parallelism of the cases, although it is nevertheless complete, (so striking is the analogy which attaches to the various outlets of the body, whether viewed anatomically or physiologically,) because a temporary unnatural retention of the matters which pass by this orifice is an affair generally of slight import, as compared to the closure of the outlet by which respiration is performed, although when organic occlusion of an intestine exists, the patient ultimately arrives at a condition quite as certainly fatal, although slowly and by consecutive stages. But when obstruction of the urinary outlet occurs, we have a condition of things not so urgent as in the first instance, but vastly more so than in that which was last described—a condition which has been seen to be in the main similar in character, but intermediate in regard of the hazard to life which it involves.

Let it be granted, then, that urinary retention, in a large proportion of cases, arises from the causes classified in the first division, and amongst these, that it is most frequently associated with permanent stricture, it follows that the obstruction must be regarded as constituted by the co-existence of two at least of three elements, generally, perhaps, by a concurrence of all three—viz. mechanical narrowing, muscular spasm, and engorgement of the tissue around, partaking more or less of the inflammatory character. The first object, then, of the surgeon's inquiry, on coming into contact with his case, is, to ascertain which of these three has the predominant share in occasioning the difficulty presented. A question or two, answered by the patient, will generally suffice to decide the pre-existence or the non-existence of permanent stricture: while the immediate antecedents of the attack, with observation of the symptoms, will do much to point out the part which inflammation or spasm may play in producing the patient's condition. It is very clear that the remedies which are commonly put in force for the relief of retention are designed to antagonize the three conditions pointed out What are they? In few words, the principal may be enumerated as follows:—

Opium, by mouth or enema; chloroform; the hot-bath; purgatives; blood-letting; the catheter.

Now while we have here a list of powerful and most efficacious means for the relief of urinary retention, nothing can be more futile in effect, or more injurious to the patient, than their indiscriminate employment. The routine application of the hot-bath to syncope, or nearly so, repeated doses of opium, or, failing in these, a smart purgative, with the trial of the catheter at any part of the treatment, on the one hand, or the complete neglect of it on the other, is neither a happy nor a successful mode of combating the obstacles most commonly encountered. Nevertheless, it must be admitted, that the successive application of these remedies frequently forms the scheme of treatment employed, and this sometimes rather from a general belief in their power as remedies for urinary retention, than from any

intelligent conviction respecting the specific adaptability of any one or other of them to the particular case under treatment.

On examining this list of therapeutic agents, however, the mode in which each promises to be serviceable becomes at once apparent. Opium and chloroform may exert a most beneficial influence when it is desirable to blunt the function of sensation, and so to subdue muscular contraction, whether voluntarily or involuntarily exerted; and nothing can be more admirable than the effect of these remedies when urethral obstruction is due to, or much complicated with, uncontrollable muscular action. The hot-bath produces its effect both by its sedative and derivative influence, and is therefore applicable as much in cases where inflammatory congestion about the urethra exists, as those in which spasm is the chief agent. But it is in those inflammatory states which are prone to follow exposure to external cold, and the free use of stimulating drinks, that free and rapid purgation, together with cupping in the perineum, are frequently followed by disappearance of the obstruction. These are the cases, if any such there really be, in which it may be safer in some hands to defer the use of the catheter, since free relief may probably be attained after some delay without it. Bleeding from the arm can never, I think, be really necessary, although to its employment is still attached the weight of high authority under the circumstances described.

The application of the catheter is naturally demanded when the obstruction partakes chiefly of a mechanical character. Of its necessity then there can scarcely, I believe, be two opinions. Should it appear that the patient has for some time experienced a constant difficulty in passing his stream of urine, none, perhaps, will deny the propriety of opposing a mechanical means to the mechanical obstruction. But it may be said, and with truth, that whatever be the nature of the attack, the immediate occasion of retention must consist in a mechanical occlusion of the urethra at some point, whether the cause of that occlusion be vascular congestion or spasm. Undoubtedly it is so, and hence it is that the careful use of the instrument may be advantageously resorted to in almost all cases at the outset of the attack—perhaps I might say to all, without exception. True the conditions just named, when forming the essential part of the lesion under consideration, may be amenable to other agents, but to none so rapidly as to the catheter, when applied by judicious and practised hands. And it is no small part of our duty, I conceive, to afford relief as soon as possible, to shorten the agoniing sufferings of unduly distended bladder, provided no additional risk is incurred by the act. I regard the catheter, then, as the first and chief means to be employed in the cases under consideration, to which all others are to be held subservient, and regarded as adjuncts, sometimes of extreme utility, indicating, however, at the same time, those instances in which it may be dispensed with, should special circumstances exist in any case to render its employment very undesirable.

And now in relation to the practical details of its application, I believe that there is no instrument half so efficient or useful, and none which is productive of so little pain to the patient, as a well-polished silver catheter. I am aware that in this matter very high authority may be quoted in favour of elastic or flexible instruments. In general terms, doubtless, every man will succeed best with that instrument to which he has been most accustomed, and we may not forget that the flexible instruments were much more in vogue at the period when the authorities referred to acquired their earliest practice, than at the present day, and that thus a practical predilection for them was originally attained, which never could be altogether lost. Nevertheless, what does Sir Benjamin Brodie advise in the treatment of cases of retention from stricture? In the first instance, the use of a gum catheter, and if this fails, a resort to the silver one. But if the latter be the most efficient instrument, surely there is no good reason for not applying it at the outset. If in any class of affections it is desirable to lose no time, to "put our best foot forward"—to make every effort in order to succeed at once, it certainly must be in those which require catheterism, since failure to succeed at the first attempt almost invariably increases the difficulty of a second, on account of the additional irritation which must, to a greater or less extent, be set up. The general objection to the use of a solid instrument consists, I believe, in the fact, that it is possible to do greater mischief with it than with the flexible instrument; that *unless properly used*, its point may be run through the sides of the urethra, and

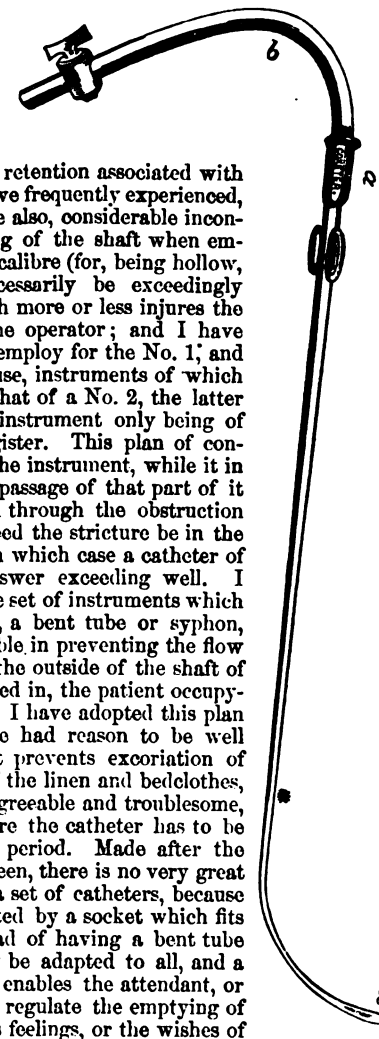
false passages may be made more readily than with the elastic gum catheter, or wax bougie. A very good argument truly against trusting a man wholly ignorant of the use of the catheter with one which is inflexible and solid—a reason doubtless sufficient for recommending the use of the gum instrument to a patient whom you may desire to employ the catheter for himself; but certainly no reason at all for depriving the surgeon, whose proper function it is to understand its management, of the silver catheter. Granted that it is possible to do more mischief with a solid than with a flexible instrument. I have no hesitation in saying that the former is in an equal ratio as much more capable of effecting good, if rightly used—is as much superior to the latter in its capability of overcoming a difficulty, as the latter is guiltless of power to do much mischief. The case resolves itself into a solution of these questions:—Does the operator desire to control the point of the instrument he introduces into the urethra, in order to overcome some obstruction there? Does he desire to be cognizant of the exact course it is taking there? Can he derive from its point sensations, appreciable through his hand, which inform him as to the progress of the instrument, or the nature of the tissue it encounters, and which may guide him in directing and modifying the motions he communicates to it? If the answer is affirmative to each one of these inquiries,—and I presume no one will venture to say it should be otherwise,—why should we employ an instrument which bends and twists, so that shortly after its introduction into the urethra, it is impossible to know the curve which it possesses, the direction of its point, or how to obtain those delicate perceptions of position, of the condition of the urethral walls, of the nature of the obstruction, which, with the solid instrument, are so beautifully appreciable, and become so advantageous to the operator. If from any circumstance I feel myself so hopeless of success, that my chance of overcoming the difficulty by the exercise of design and tact in the management of the catheter is gone, I might then be induced to try a flexible instrument, in the faint hope that its point might penetrate, by happy chance, the opening which skill had failed to hit; as the lost rider in a gloomy night and in a strange country throws the rein upon his horse's neck, and trusts to fate.

But the use of solid instruments does not imply the use of force. Never was there a greater misapprehension of the grounds on which their employment is advocated, than that of imagining any part of their value to consist in a capability of being employed with rudeness and force. In a discussion relating to the employment of instruments in urethral obstruction, there is no more important element than the method in which they should be employed. I believe it to be wholly impossible to overrate the necessity for cultivating a light hand, and for abstaining altogether from the employment of the smallest approach to force, in the act of traversing the urethra. I will go so far as to say, that the operator is always doing mischief if he inflicts pain, at all events, to any material extent. That is a statement which may, perhaps, be disputed. I know full well that there is nothing which patients, who have suffered much from irritable stricture, dread more than a resort to the catheter, and how they often put off the trial as long as possible, from a painful recollection of former experiences. I hold to my position, nevertheless. I repeat, *the use of the catheter should never be painful*—that is to say, should never be attended by any more than a very moderate and a very bearable degree of pain, or it is not use but abuse; and with these views I firmly believe that the light and proper use of the silver catheter accomplishes the greatest amount of success, while it inflicts the smallest degree of pain.—*Lancet*, *June* 9, 1855, *p.* 579.

72.—THE TREATMENT OF RETENTION OF URINE.

By Henry Thompson, Esq., M.B., Honorary Surgeon to the Marylebone Infirmary, &c.

There is a point in connexion with the use of fine or small catheters which has appeared to me one of consequence. It is sometimes necessary to use smaller instruments than the ordinary No. 1; and although it is impossible to deprecate too strongly the use of instruments which are even half a size smaller than is absolutely necessary, since the capability for doing mischief always increases in the same ratio as *the diminution in the size* of the instrument, yet sometimes we



a a. A No. 1 catheter, drawn of about half the actual size. The upper or open extremity is enlarged to fit the moveable syphon, *b*. Each catheter in the set has its upper extremity of exactly the same size.

* Indicates the spot above which the shaft begins to enlarge as it rises towards the upper extremity; below it, the instrument has the uniform size of the register for about three or four inches. The shaft in this case gradually increases in size from No. 1 in this spot to nearly No. 3 at the opposite end, by which additional stability is gained.

b. The bent tube or syphon, with a stop-cock. It fits each catheter in the set; or any gum catheter, if mounted with a metal extremity for the purpose.

do require such for cases of retention associated with very narrow stricture. I have frequently experienced, and I doubt not others have also, considerable inconvenience from some bending of the shaft when employing catheters of minute calibre (for, being hollow, such instruments must necessarily be exceedingly weak)—an occurrence which more or less injures the instrument, and deceives the operator; and I have therefore found it useful to employ for the No. 1, and two sizes smaller which I use, instruments of which the shaft is equal in size to that of a No. 2, the latter three or four inches of the instrument only being of the size indicated by the register. This plan of construction gives firmness to the instrument, while it in no way interferes with the passage of that part of it which has to be introduced through the obstruction into the bladder, unless indeed the stricture be in the anterior part of the canal, in which case a catheter of the ordinary make will answer exceeding well. I have also had adapted to the set of instruments which I am in the habit of using, a bent tube or syphon, which is extremely serviceable in preventing the flow of urine downwards along the outside of the shaft of the instrument when it is tied in, the patient occupying the recumbent posture. I have adopted this plan for a long period, and have had reason to be well pleased with the result. It prevents excoriation of the skin, and that wetting of the linen and bedclothes, which is so exceedingly disagreeable and troublesome, not to say mischievous, where the catheter has to be retained for a considerable period. Made after the fashion in which it is here seen, there is no very great addition to the expense of a set of catheters, because each instrument is terminated by a socket which fits the syphon, and thus, instead of having a bent tube for every catheter, one may be adapted to all, and a stop cock at the end of it enables the attendant, or even the patient himself, to regulate the emptying of the bladder, according to his feelings, or the wishes of the surgeon. An elastic instrument, when it is desirable to substitute one of this description in any part of the treatment or for any kind of case, may be employed with a metallic nozzle of the same pattern, to which the same bent tube may be adapted with equal facility. For the purpose of injecting the bladder also, the same instruments are particularly applicable, as all may be fitted to one syringe or to one extremity of an elastic tube or bottle, if the latter medium be employed.

There is a circumstance very necessary to be remembered by the operator in relation to catheterism in cases of confirmed stricture, which does not appear always to have received that marked attention which its importance demands. I have had several opportunities of exhibiting examples of the condition referred to at the Pathological and Medical Societies during the past year. It is well known that posterior to an old organic constriction of the urethra a considerable degree of dilatation often exists. The canal behind is *gradually* extended and opened out by the hydrostatic pressure occasioned in the *habitual and powerful* straining to pass urine which the patient is compelled to

exert. Not only, however, does dilatation occur, but frequently also a fasciculated condition of the prostatic urethral walls, very much like that which we see in hypertrophied and fasciculated bladders, so that numerous fibrous bands intersecting each other appear prominent beneath the mucous lining, and interstices of corresponding depth and magnitude are seen between. It is not difficult in examining these to comprehend how that the difficulty of the case is by no means surmounted when the point of the instrument has been insinuated, after much trouble, through the narrow channel of the stricture. We should not then at once push on our acquired success; for here indeed is a source of danger, greater in some cases than any that has before been encountered. Nothing is easier than to entangle the point of a small instrument in the meshes of these fibrous bands, and nothing is calculated to be more mischievous than any laceration in this posterior part of the canal. We cannot be too careful in the management of the instrument after the stricture has been surmounted, not only on account of the possibility of the existence of the difficulty described, but also because the delicate appreciation of an obstacle is far less easy after the catheter has passed through the stricture, and has become embraced by it, since it is in some degree difficult to recognise a slight degree of resistance which may offer itself beyond the point at which the grasp of the constriction interferes with freedom of motion on the part of the instrument.

A preparation recently added to my collection was taken from a case, the particulars of which form an apt illustration of these remarks. It belonged to a patient whom I was requested to see when labouring under complete retention. Attempts had been made to relieve him, both in the hot-bath and out, but without success. I found him almost comatose, and with great depression of the powers of life. He was seventy-three years of age, and had suffered from stricture for many years. The condition of retention had been discovered about twenty-four hours before, but it had probably existed to a greater or less extent for a much longer period than this. Passing a No. 8 catheter, I found the obstruction distinctly marked in the bulbous portion of the urethra. With tolerable ease a No. 1 was carried through it, and here I encountered the obstacle, which, from what I learned, was probably that which had previously presented the chief difficulty. The instrument was felt in the rectum with more than ordinary distinctness, suggesting that it might be beneath the prostate gland, and lying in a false passage. A degree of mobility, however, and the fact that the stricture was one of very long standing, suggested that the point of the instrument was involved in the meshes of a dilated prostatic urethra behind the organic constriction. Accordingly with a little withdrawing and manœuvring of the point, I was enabled to carry it into the bladder, drawing off about thirty ounces of dark and ammoniacal urine. I then tied it in the usual way, with the bent tube attached. The patient dying in a day or two after, from a degree of exhaustion which his age and general infirmities did not permit him to overcome, I found, on careful examination of the specimen, that there was no false passage, but just the condition which has been alluded to. The atrophy, or thinning of the prostate gland from dilatation, especially at its inferior part, accounted for the ease with which the instrument could be felt by the finger in the rectum, and the recesses and dilated orifices seen there had, without doubt, occasioned the difficulty in carrying the catheter into the bladder. It is in these cases, in which the urethra is dilated, thinned, and weakened behind the stricture, that the catastrophe of rupture and urinary extravasation is especially prone to happen when the distended bladder has not been relieved by surgical treatment.

Another practical point to be borne in mind, in approaching cases of retention associated with organic stricture, appears to me to be the frequency with which the immediate cause of temporary obstruction consists in the formation of matter in some part of the perinæum near to the urethra. There may be no swelling visible externally, nor, indeed, any decided feeling of tension to the finger. Of course, when these are present, the case is clear enough, although even then it is sometimes overlooked. When neither are distinguishable, there may yet be a marked tenderness on pressure. The patient may flinch very considerably on placing the finger firmly on the perinæum, anterior to the anus. Heat and swelling may then, perhaps, be *detected by introducing* a finger into the rectum, and

applying it to the anterior wall. If the stream of urine has gradually but notably diminished in size during the last day or two, it increases the evidence in favour of the belief that abscess is the main cause of the difficult micturition. If, also, there are restlessness and fever, with, perhaps, the occurrence of rigors, this view will be corroborated, and there can be little doubt of the necessity which exists for the exit of pent-up matter. A straight bistoury should then be introduced steadily and decidedly, in the median line of the perinæum, a little anterior to the anus, so as to penetrate the deep fascia, if necessary, behind which it is not improbable, with the symptoms above described, that the matter is located. Very similar signs may be present when the collection is enclosed in the fibrous sheath at the root of the corpus cavernosum of either side; but in this case the swelling which accompanies it dissipates any doubt as to the nature of the lesion. Nevertheless, this state of things may cause retention. During the past year, I had a case in which I relieved that condition by opening a collection in the right crus of the penis, which appeared to be the proximate cause of the difficulty, for the urine soon afterwards flowed freely, and the catheter could be readily introduced. It has been recommended on high authority, to perform the "perineal section" in those cases in which retention depends on stricture complicated with abscess in the perinæum, by which term is intended an operation that consists in passing a full-sized sound or catheter down to the obstruction, and opening the urethra at this point with the view of making a dissection through the stricture, and subsequently carrying on the catheter into the bladder. Now, granting that this may perhaps be a legitimate proceeding in some few and very exceptional cases of extreme difficulty, I must express my dissent from the opinion that it should be employed in the cases described. I believe it to be extremely rare indeed that retention will not yield, in such instances, to the simple opening of the abscess—not immediately, perhaps—but in the course of two or three hours, or even less, after evacuating the pent-up matter. And this desirable result may occur in two ways: the urine may flow by the natural channel when mechanical pressure is removed from it, and the congestion subsides, as it so rapidly does, when exit is given to pus, in these circumstances; or within an hour or so the urine may at first dribble, and then flow freely through the artificial opening caused by urethral communication with the sac of the abscess. I shall beg leave to request attention to two cases, of which the chief particulars only shall be very briefly given, in illustration of the point in this treatment of retention. They are selected as somewhat typical examples from a number which have come under my own care or observation.

Case 1.—J. D——, aged fifty-seven, was admitted to the Marylebone Infirmary, Nov. 5th, 1853. He has been the subject of difficult micturition for many years; the stream of urine, always very small, sometimes passes only by drops. During the last three or four months the difficulty has increased, and he has observed swelling and induration in the perinæum. Seven days ago the penis and parts around began to enlarge; three days ago he was compelled to give up work from pain and distension of the belly; the urine passing by drops.

Nov. 6th.—I saw him for the first time. Retention almost complete; supra-pubic dulness reaches nearly to umbilicus; scrotum and penis distended with fluid; considerable tension and heat of perinæum, but no marked prominence. Having made a single attempt to pass a catheter, and finding considerable obstruction about five inches from the orifice, I deemed it desirable to make a free incision of the perinæum in the median line. It was carried deeply, and a few drachms of dusky-coloured matter followed the knife. A poultice was applied, and soon after urine was observed issuing by the wound. In the course of an hour or two, about thirty ounces had passed away. Incisions of the penis and scrotum were also necessary to relieve the extravasation there. Two days afterwards a small stream issued by the external meatus, as well as through the perineal opening, when he stood up to pass urine, as he was now able to do.

In this case the retention, although complicated with extravasation as its result, was undoubtedly primarily due to deep-seated perineal abscess, and the urethra accordingly became patent after exit had been given to its contents. Had he been seen at an earlier period, before extravasation had taken place, and the indurated perinæum then been incised, the occurrence of that unfortunate result would almost *to a certainty have* been averted.

Case 2.—T. S——, aged forty-six, a porter. Requested by his wife to see him on January 16th, 1854, at the Blenheim Dispensary. Stricture of old standing; treatment by dilatation and caustics at different times with more or less improvement. Has twice had complete retention, and relieved himself by hot fomentation. During the last three months his difficulties have been increasing, and the bladder of late has been extremely irritable. Three days ago was carrying on his occupation under much exposure to weather, and has passed his urine in drops, with much straining. Has fomented himself at night with little benefit. Yesterday he was compelled to give up work, feeling his bladder full, and being unable to relieve it.

I found him at his home in great distress, and suffering from unrelieved retention. On examining the parts, some heat, hardness, and tendency to fulness of the perinæum, were detected, but no sign of fluctuation. I attempted to pass a catheter, and, after two or three trials, succeeded in introducing a No. 1 into the stricture, where it was firmly held, but not in moving it onwards with that degree of force which I felt warranted in employing. Accordingly I tied it in as it was, and, placing the patient in position, made a free incision in the perinæum, carrying in the point of the bistoury fully an inch and a half. Three or four drachms of matter immediately issued. I ordered him hot fomentation and a poultice, and promised to see him in an hour, not doubting but that I should be able to pass the catheter at that time. On returning, I found the instrument still held, but with a very little pressure had the satisfaction of carrying it into the bladder, and evacuating forty-five ounces of urine. The subsequent treatment it is not necessary to detail. Tying in one instrument after another, Nos. 5 and 6 were soon reached, and he left his bed. Afterwards the stricture was dilated in the usual manner, and the opening in the perinæum healed, never giving issue to urine at any time, contrary to that which generally happens in these cases.

I could add several other illustrations of the principle which I am anxious to insist upon, but should be only multiplying similar cases by doing so, and unnecessarily occupying space. That principle is this: *that when perineal abscess is found co-existing with retention of urine, it is very rarely necessary to have recourse to any severer measures than the opening of the abscess, and the passing of the catheter;* and, further, that the sooner the necessary opening is made, the less likely is the patient to become the subject of extravasation at the time, or to suffer from urinary fistula afterwards.—*Lancet, June* 23, 1855, *p.* 628.

73.—ON STRICTURE OF THE URETHRA.

By Professor Syme, Edinburgh.

As a rule, Mr. Syme, in common with surgeons generally in this country, treats stricture by simple dilatation, eschewing the use of caustics and internal incisions. So firmly persuaded is he of the efficiency of the catheter, that he believes there is no stricture, however narrow, which will not admit an instrument, provided it be sufficiently small, and be employed with care and patience. He therefore believes that it is wholly unnecessary to resort to the operation of dissecting through what have been termed impermeable strictures, preferring to insinuate a catheter rather than to employ a knife in these circumstances. Hence he disapproves of that operation usually termed "the perineal section," which has been frequently resorted to in this country for the last thirty-six years. Having proceeded to employ dilatation, if he finds that the stricture rapidly re-appears in spite of it, or that the process involves much constitutional disturbance, he prefers to divide freely the stricture from the perineum, upon a grooved director, performing the incisions in the median line, tying in a catheter for forty-eight hours, and subsequently passing it a few times at about weekly intervals. This proceeding, to which he gives the name of "external division," is stated by him, on the ground of an extensive experience, to be devoid of danger, and generally to be attended with a successful result, a conclusion with which our own experience of it leads us, without any hesitation, to coincide.

The observations which first attract our attention in the work of Mr. Syme,

have reference to the old question of impermeable stricture. Setting aside actual obliteration, Mr. Syme simply affirms that when urine passes out by the urethra, a catheter of appropriate size may always, with sufficient care, dexterity, and perseverance, be sooner or later passed into the bladder. On this point we yield adhesion to the principle announced, regarding a belief in it as a valuable and important acquisition to the surgeon. No doubt but that the man who most trusts his catheter will handle it most successfully, while he who uses it under the abiding impression that the trocar or the scalpel may be always employed to expiate a failure, will not overcome difficulties which the former will surmount. We are therefore glad to learn what has been Mr. Syme's later experience in relation to difficult catheterism. He candidly tells us that since he has made his well-known statement respecting impermeability, he has been unable, in the cases of three patients, to pass an instrument of the smallest size from the external meatus to the bladder, by means of manipulation only. This admission exhibits a fact of great interest. Did he puncture the bladder, or dissect through the stricture, in these cases? By no means: let us hear his own account of the proceeding:—"Indeed, on three occasions—one in private, and two in public—I found it necessary to open the urethra anteriorly to the stricture, so as to obtain the assistance of a finger placed in the canal, to guide the point of the instrument." And we subsequently find details relating to a case in which the stricture being complicated with a false passage, it appeared impossible to insinuate the smallest instrument through the contracted channel, until, the urethra being opened immediately anterior to the stricture, the operator was enabled to guide onwards with his finger the point of the catheter through it. We are bound to regard the extreme paucity of exceptions as a striking confirmation of the rule announced by Mr. Syme.

There is another observation which it is impossible to pass over in silence, relating to the part of the urethra which is affected by stricture. The author has on various occasions questioned the accuracy of writers in general who have treated of this subject. It is quite certain that we are even now constantly hearing of "strictures in the membranous portion," and not long ago it was common to speak of them in the prostatic part, or even "at the neck of the bladder." Such remarks always rested upon fallacious impressions received by operators in the use of instruments upon the living subject, and not upon anatomical observations, which, it need hardly be said, can alone determine the question. Discussing the merits of his operation, Mr. Syme writes the following respecting this matter:

"The only sources of danger that can be attributed to the operation, are bleeding and extravasation of urine; and in order to estimate the importance due to them, it is necessary that the true position of strictures should be ascertained. If they existed in the prostatic or membranous portion of the canal, extensive incisions, involving the deep fascia of the perineum, would be requisite; and, accordingly, this has been made a serious objection to my proposal by writers who quote the authority of Sir B. Brodie and others to prove the occurrence of stricture behind the bulb. But the fact is, that the seat of contraction is never so far back, and may be positively limited to that portion of the urethra which extends from the bulb to the orifice. The ground upon which I make this statement is, that in all my experience I never found it necessary to cut further back than the bulbous portion, for the conveyance of a full-sized instrument into the bladder."

Now, with a view to the elucidation of this question, we undertook, some few years ago, a careful and laborious examination of every preserved specimen of stricture in the museums of London, Edinburgh, and Paris, comprising above 300 preparations. This examination confirmed Mr. Syme's observation to a remarkable extent, so far as it related to the non-existence of prostatic stricture, and to the *extreme rarity* of the affection in the membranous portion; but three or four preparations there are in this metropolis, in which, beyond all doubt, it does exist in that situation. And this, as a pathological fact, however slight its importance, may not be altogether lost sight of or ignored.

Any addition to our knowledge of the circumstances which may have occasioned failure after the performance of the operation, is extremely acceptable. Subsequent contraction at the site of the incision has been attributed by Mr. Syme to various *causes, for the most part* preventable. Among these, he points out more forcibly

than ever the undesirable influence of union by the first intention in the incisions which have divided the obstruction. Thus he says—

"The most obvious and certain causes of relapses would appear to be adhesion by the first intention, between the edges of the incision made through the strictured part, which must restore the state of matters that existed previously to the operation. It might be expected, indeed, that the stream of urine passing over the raw surface would effectually prevent any such occurrence; and so I believed must be the case, until taught a different lesson."—*British and Foreign Med.-Chir. Review, Oct.* 1855, *p.* 368.

74.—CASE OF SUPPOSED IMPERMEABLE STRICTURE OF THE URETHRA.

By Dr. Kelburne King, Hull.

[Professor Syme has laid down the axiom that "all strictures are permeable." Here was a case which had for years been supposed to be impermeable, but was proved to be otherwise. If sufficient care be taken in the selection of instruments, and patience exercised in their introduction, the cases of impermeable stricture will certainly be infinitesimal in number.]

On the 30th Jan. 1854, I was asked by my friend Mr. Hodgson of this town, to visit G. C. R., a solicitor's clerk, aged about 31, who gave the following account of his case. He stated that since 1845 he had never been free from urinary complaints—the commencement of which he attributed to the use of a solution of nitrate of silver for the cure of a gleet. For the first three or four years, though he suffered a good deal from frequent slow and painful micturition, he did not experience much actual inconvenience, except after committing some error in diet or other imprudence. In 1849 he contracted a fresh gonorrhœa, and the discharge was so obstinate, that suspecting it might be occasioned by the existence of stricture, his surgeon attempted to pass a bougie, but in spite of frequent trials did not succeed in reaching the bladder. His sufferings increased, but he was not obliged wholly to lay up till the month of October, 1850, when, in consequence of some slight excess, he had a severe aggravation of his symptoms. The calls to empty the bladder became very frequent and painful, and he began to experience fits of retention. He became subject to what was considered a kind of rheumatic fever, with severe pains shooting down his thighs and legs, frequent rigors, low spirits, and general debility. At this time he was for two years under medical treatment, and many attempts were made to penetrate the stricture, but without success. His condition became gradually worse, the fits of retention more frequent and severe, and he suffered dreadfully from neuralgic pains of the limbs and feet. In 1852, this last symptom was thought so urgent, as to require the application of blisters to the feet and ankles. Daily attempts were again made to pass a catheter, but without success; and though the pressure of instruments often caused the urine to flow after their withdrawal, only once during the whole period of treatment was it observed to escape through the catheter. About this time he became acquainted with Mr. Wade's 'Treatise on Stricture,' and at his own request the caustic potass was applied as there recommended. He stated that, when pressure was made for a minute, he felt as if something gave way, and the instrument could be easily pushed in for a considerable distance. A flow of urine usually followed its withdrawal, and in this way his attacks of retention were frequently relieved. These became, however, more and more frequent, and could not be relieved by the catheter; the other urinary symptoms increased in severity, his general health became much affected, and his strength greatly reduced. He could hardly sit up in bed, but had to be propped by pillows. By the advice of a physician he left Hull, and went for change of air to a village on the opposite side of the Humber, but not experiencing any benefit, he went to London, and consulted a homœopathic physician. As globules proved ineffectual, he was referred by his adviser to a surgeon, who, on examination, informed him that he laboured under spermatorrhœa. This surgeon made many attempts to pass instruments, and introduced various ointments into the canal, but never reached the bladder. I may state here, that in all *these attempts*, considerable bleeding took place from the

urethra. From London he went to Brighton, where his general health improved, and he returned to Hull in the latter part of 1853, considerably stronger, but suffering as much as ever from his urinary symptoms. In Dec. 1853, he got cold in travelling, and had a severe paroxysm of his complaint. By this time his urine never passed in a stream; he had increased calls every half hour, night and day, but only a few drops dribbled away at a time. Having taken a single glass of whisky and water, he had, some days before I saw him, a violent fit of retention with pain and straining. He got into a warm-bath, and passed a bougie as far as he could, in the hope that, as frequently happened with him, its pressure might cause the urine to pass. This result did not follow, and he observed that some blood passed by the anus. He then sent for Mr. Hodgson, who passed a catheter readily up to the eyes without using the least force. The pressure of the instrument excited a copious flow of urine, but it was noticed that it all passed by the sides, none through the aperture. The patient likewise observed that some drops came away per anum.

On the evening of the following day (30th Jan. 1854), I saw him along with Mr. Hodgson. We found that a full-sized catheter passed easily, apparently in the right direction, and as far as the length of the instrument allowed. But no urine came away by it, although he had passed none since morning, and the tumour in the hypogastric region proved that the bladder was full. On passing my finger into the rectum, I found that the beak of the catheter had entered the cavity of that bowel by a false passage, which, on withdrawing the catheter, could be distinctly felt as a roughened surface on the anterior aspect of the rectum, about an inch above the anus. The nature of the case, and the necessity of confinement to the house during the early stages of the treatment having been explained to the patient, he requested a few days to arrange his affairs, and it was the 5th of Feb. before I saw him again. We then succeeded, though not without considerable difficulty, and after a long trial, in passing catheter No. 1 through the stricture into the bladder. A large quantity of offensive ammoniacal urine was drawn off, and the patient watched with great pleasure the stream running from the catheter, which, small as it was, he said greatly exceeded what he had seen for years. The instrument was retained in the bladder for forty-eight hours—a point of great importance in cases of very confirmed stricture. I could then have brought about a seemingly quicker cure by means of rapid dilatation; but if stricture is occasioned by the deposition of adventitious structures which are capable of absorption, it is clear that to procure this absorption time must be given—the effects of rapid dilatation must be purely mechanical—and this sort of dilatation or stretching, though it may be carried to a very great extent in mucous canals, is never permanent, being followed by a speedy return to the original dimensions. As the great object in the treatment of stricture is to obtain a permanent cure, we must discard as much as possible the fallacious assistance derived from mere mechanical stretching, and place our main reliance on those means which promote absorption of the abnormal tissues. There is no way to attain this end, in the vast majority of cases, so certain as the slow and graduated use of bougies. In reference to the frequency with which this operation should be repeated, it must depend on the nature of each particular case. It ought not to be done so frequently as to occasion pain—twice a week is often enough, and even once a week will in many cases be found sufficient.

I have little more to say regarding the progress of this case. Instruments were introduced at intervals of three or four days. He never had a symptom of any sort, and progressed so favourably, that on the 10th April the largest sized bougie could be passed with readiness. He had long before resumed his usual duties, and from that time till the present day (Sept. 6, 1855), he has never had any return of his former symptoms. On dismissing him, I recommended that he should have a full-sized instrument passed once a month for some time—an injunction he soon ceased to attend to; but I took an opportunity lately of examining his urethra, and can vouch so far for the permanence of the cure.

I have entered at considerable length into the details of this case, not because there is anything remarkable about it—considered simply by itself—but because it is a sample of a class of cases sufficiently numerous to call for some remark and *consideration.* There was originally permanent stricture, combined with great

irritability of the canal. The instruments employed for its cure (judging by those I saw) were too large to penetrate it, and the fatal facility of classing it among "impermeable strictures," prevented those exertions which would have long before restored the canal to its normal condition. It also illustrates the utility of the ordinary method by dilatation in a case where the too ready employment of this word "impermeable," had condemned the patient to years of suffering. The means of remedy were simple and at hand—but from a belief that the cure was beyond their reach, they had not been taken advantage of, and I have been induced to select this from many other cases of the same sort which have been brought under my notice, for the purpose of lending what assistance I can in dispelling an illusion which is still too widely spread.

The extent to which the false passage was carried in this case is something remarkable. In spite of the statement made by the patient regarding the passage of blood and "water" per anum, I was not prepared to find that the bowel had been actually penetrated. It is not easy to limit the course of an instrument which has once passed out of the urethra, but I do not think that a bougie or catheter could have been forced through the walls of the rectum, but for the assistance afforded by the caustic potass. This agent has always appeared to me too powerful in its action on living tissues, to be with safety thrust in the dark against an obstacle never very distinctly defined, and which is no more liable to its effects than are the surrounding healthy structures. In ordinary cases its aid is not required, and for extraordinary cases there are other means safer and better, because more under the control of the surgeon. This case presents to us one of the effects which may result from its application in a wrong direction.

There is another point in the treatment of stricture to which I would call attention, in connexion with the foregoing. In surgical writings and lectures, we occasionally find it recommended to make pressure against a stricture which does not readily yield. In this way it is said absorption is promoted, the strictured part gradually reduced, and the ultimate cure greatly facilitated before the stricture has been permeated at all. This process has received the name of "tunnelling," and has been recommended on high authority. Now, there are doubtless many strictures which do not admit of penetration at the first attempt, and it may soothe a patient's mind to allow him to suppose that these unsuccessful attempts clear the way for what is to come after; but I have never observed, in my own experience, that any real good has followed from them. In the case related, it was tried for years, but without even retarding or alleviating the progress of the symptoms. However it may be explained, I have never seen any beneficial result until an instrument can be fairly passed into the bladder. I would, therefore, advise no one to linger tunnelling on the threshold of a stricture, but, with all expedition, by patient, steady, and gentle manipulation, strive to penetrate it, regarding that as the first indispensable step towards a cure.—*Edinb. Med. Journal, Oct.* 1855, *p.* 315.

75.—ON CERTAIN POINTS IN THE TREATMENT OF STRICTURE.

By J. Z. Laurence, Esq., Surgeon to the Northern Dispensary.

Any questions that may arise on the treatment of stricture of the urethra, can, in the majority of instances, only refer to strictures of long standing, that have reached a degree of intensity either from their intrinsic nature or from abortive treatment. Exacerbations of the disease from this latter cause may, I think, be not unfrequently traced, not so much to any want of skill of the surgeon, as to his being perhaps wedded to *one* particular class of instruments to the exclusion of all others. Even Liston had such a predilection, and Syme appears to have fallen on the same track. The proper answer to the question, "How do you treat strictures of the urethra?" is, I conceive, Sir B. Brodie's,—"I have no particular method." As this last author justly remarks: "The temper of the urethra varies as much as the temper of the mind." The more I see of disease, the more firmly I am convinced that any *exclusive* treatment of any individual disease is founded upon erroneous preconceptions, and moreover these same preconceptions often lead to an arrogant assumption of a "*special*" skill in the management of particular mala-

dies, as little warranted by the assumer's knowledge as by his experience. Thus, a surgeon who prefers flexible instruments for the treatment of certain extreme cases of stricture may have it hinted to him that he does so because he is not sufficiently conversant with the direction of the urethra to guide a fine silver instrument in the proper direction. Such a hint can only display ignorance of the pathology of the disease; it implies that the direction of the diseased urethra is always certain to be the same as that of the sound one; this, however, we know to be a false implication. What would one say to a surgeon who extracted, or couched, or divided all cataracts indiscriminately, or to a surgeon who treated all his cases of fracture on one exclusive plan of treatment? Such empirical dogmatism is as narrow-minded as it is in discord with the varied aspects of disease.

In treating a tight stricture, the best plan is in the first instance to see whether a metal instrument can be passed without giving the patient an inordinate amount of pain, or drawing blood from the canal. Fine silver instruments possess two disadvantages; firstly, they approach pointed instruments so closely as to require extreme caution and entire absence of force in their introduction—more false passages are made by fine metallic instruments, I have no doubt, than in any other way; secondly, from their tenuity, their shafts are extremely liable to bend unduly. A bougie made after the plan of Syme's staff would in a great measure obviate this. John Hunter, in his Treatise on the Venereal Disease (London, 1788), has suggested something of this description:—"When very small . . . . they (bougies) should be nearly of an equal thickness till within an inch of their smallest end, after which they should taper to a point."

Should you not succeed in introducing a silver instrument, try a gum elastic one; if not with this, have recourse to a fine catgut bougie. With sufficient perseverance and manual dexterity you are certain to succeed, if not at once, certainly ultimately. A surgeon can make no greater mistake than to wish to get an instrument through a tight stricture at once by an unwarrantable degree of force in its use, and no less a great one if he regards his success as a real success.

Who cannot but admire the patient skill of Sir B. Brodie, when he tells us of a case where he was a whole year before he succeeded in passing an instrument through into the bladder? Another surgeon might perhaps have succeeded in a very much shorter period, with the liability of simultaneously shortening his patient's existence. Obstinate strictures often require to be dilated, if the expression be allowed, "piecemeal;" that is to say, at the first trial perhaps you may succeed in getting an instrument a certain way into the stricture; the next time you get it still further in, and so on till you get it through (*i. e.* into the bladder). The catgut bougie is a very useful instrument in extreme cases; it unites two excellent qualities, a sufficient firmness with a fair amount of flexibility to accommodate itself to the tortuous route of a diseased canal. With reference to the constitutional treatment of your patient, I may say that nowhere is "the reciprocal operation of constitutional disorders upon local diseases" more observable. Repose, attention to diet, and the general hygiene are of the utmost importance.

The following case illustrates many of the above points. (It is given briefly, as the case is not yet complete, and will further be published in detail at some future period.)

G. R. came under my care through the kind recommendation of my friend, Mr. Gayleard, on July 30th. He has had a stricture of the urethra for these last twenty years, and has suffered greatly for the last ten years. No instrument has ever been got into his bladder, excepting on one occasion, when Mr. Gayleard succeeded, five years ago, in passing a fine gum elastic instrument, to relieve him of a partial retention. He then entered Bartholomew's Hospital. During three months silver instruments were used daily, without ever passing through the stricture, and each attempt induced bleeding and pain.

When he came to me he was suffering from symptoms of stricture of the most aggravated description. He voided his urine two or three times an hour, in tablespoonfuls at a time, with a scalding sensation in the perinæum. His rest was broken by being obliged to get up six or seven times in the night to pass his water. This was constantly dribbling from him, and he had been in the habit of soiling his linen, by his straining to make water being so great as to produce a partial fæcal evacuation. A full-sized sound showed the stricture to be 6¼ inches down the

canal. The finest instrument would not penetrate the stricture. He had, in addition, a perineal fistula, with a good deal of induration matter in the scrotum. There was no evidence of renal disease. Without entering into any details, I may say, that after giving silver instruments a fair trial, I was obliged to relinquish their use; I then had recourse to small gum elastic instruments without success; but on the 13th instant, succeeded in getting a fine catgut bougie into the bladder. Since that time I have advanced up to No. 8. This instrument, conjoined with appropriate general treatment, has hitherto been attended with the best results. He now passes his water in a fair stream, about three times a day, and his rest is no longer disturbed; his incontinence has left him.

Now I believe that any well-informed practitioner would have benefited this patient long before, had his method of treatment been varied to the exigencies of the case.

The questions that have been raised upon the *curvature* of urethral instruments have, within certain limits, been exalted to an undue degree of importance. The anxiety to obtain an instrument of the precise curvature of the urethra, is a misplaced one, because, in introducing such an instrument, you successively introduce portions to whose curvature the portion of the urethra they are in contact with does not correspond. Besides, a preservation of normal curvature is presupposed, which, in strictures of long standing, there is little reason to hope for. Mr. Quain generally passes fine elastic instruments *straight* into the urethra, and this, I believe, is much superior to passing them in bent.

Any person who has had experience in the treatment of strictures knows that there is a class of cases in which, after dilatation has been carried to a certain point, no further progress can be made. This form Mr. Syme has specially alluded to as the "unyielding," in which, "though dilatation may be carried on to some extent, it is sooner or later arrested by resistance of the tough texture at the seat of contraction." To this species of the disease the treatment by *caustic* or *incision* is applicable.

The treatment by caustic has, to a certain degree, lost ground; I apprehend more from the method in which it is usually applied, than from any intrinsic demerit of its own. "Much of the obloquy that has been heaped upon cauterization has unquestionably been occasioned less by the action of the caustic, than by the unskilful mode in which it has been applied," are the words of Mr. Benjamin Philips. He incised the urethra before applying his porte-caustique to the stricture.

The method usually followed by surgeons, is to arm a tolerably full-sized wax bougie, by inserting into a cavity made in its termination some scraped caustic, and then to pass the instrument, thus armed, down to the stricture, against which it is held in close contact for half a minute or so. A little consideration shows this to be a clumsy, unsurgical proceeding. There are two very obvious objections to it. 1. Only the mouth of the stricture is reached by the caustic. 2. There is a great risk of fragments of caustic dissolving and flowing into the portion of the healthy urethra immediately in front of the stricture. The method of cauterization by the porte-caustique is less objectionable in these respects, but implies a degree of dilatation which would render its utility doubtful.

"Whenever caustic is frequently employed, you are in danger of creating a false passage, in consequence of the dissolved caustic flowing to the lower part of the urethra, and destroying the parts unequally."

I believe that the method I am now about to describe is free from these objections, and will afford surgeons a wider scope of testing the curative powers of caustics, than they have hitherto enjoyed.

If the point of a catgut bougie be immersed in nitrate of silver in a state of fusion in a platinum crucible, it will be found to swell up and partially char; but I find that the addition of a small quantity of water prevents this, and that by twirling round the end of the bougie in this liquid you may get its termination coated very evenly with a fine layer of the caustic. It requires a little practice to hit off the precise quantity of water to add, but I have now succeeded in arming any number of bougies easily and expeditiously in this way. The mode of application is this: Pass a full-sized straight catheter with one terminal aperture (such as I have described in the 'Association Journal' for May 5th, 1854) completely down to the

stricture; then pass the armed bougie (having previously marked off with a scratch of the nail the extent you wish to protect it) through the catheter *into* the stricture; the whole track of this latter may then be freely and equably cauterized by gently rotating the bougie. In this way I have employed the nitrate of silver with advantage. It will be seen that the only amount of dilatation that this method of cauterization presupposes, is that which is sufficient to admit the finest catgut instrument,—a degree always attainable by moderate skill and patience. I find that the operation is easy to perform with the simple apparatus I have mentioned. Mr. Coxeter, however, is at present engaged in adapting the principle to a special instrument for the purpose; but I am not prepared to say that it will thereby acquire any additional superiority or not, although, from what I know of Mr. Coxeter, I presume it will.—*Med. Times and Gazette, Sep.* 1 *and* 29, 1855, *pp.* 210, 316.

76.—*Lubrication of Catheters, &c.*—The practical surgeon can afford to regard nothing as insignificant which can exercise the slightest influence on the result of his treatment. Although not a matter which generally claims much attention, we observe that several of our Hospital Surgeons, and those, too, among our best, are very particular as to the kind of grease which they employ for smearing catheters, &c. A moment's consideration will, indeed, convince any one, that the question of preference is one of some importance. To say nothing of pain, &c., to the patient, the difference between a well-lubricated urethra, and one which is not so, may not unfrequently decide the success or failure of the attempt at catheterism. The objects to be gained by lubrication are several:—1st. Mechanical friction is diminished; 2ndly, the mucous membrane is shielded and rendered much less sensitive; 3rdly, the mouths of follicles, crypts, &c., are filled; 4thly, the prevention of irritation to the mucous membrane prevents also spasm, a circumstance which, as the muscularity of the urethra is now generally admitted, is of the greatest consequence; 5thly, the mucous membrane is rendered (mechanically) supple, and the chance of its laceration or abrasion is very much diminished. Now, in order that these intentions be well fulfilled, it is necessary that the grease used be of a kind likely to be carried with the instrument down the whole tract of the urethra. It must, therefore, possess a certain amount of cohesion, and not be easily rubbed off. The ointment used for this purpose at St. Bartholomew's and several other Hospitals, consists of equal parts of olive oil and fresh lard, at others, castor oil is employed. We are inclined on the whole to give preference to the latter. When cold, it is very viscid, and adheres well to the catheter, and it loses its viscidity just at the proper time, as it becomes warmed by the instrument and the urethra. It keeps much better than anything containing lard. Olive oil is much too liquid, and should never be used. If the urethra be known to be very irritable, it may be well to adopt a plan to which we observe Mr. Wormald often resorts, of employing two instruments, the first of which is withdrawn just before touching the stricture, being used merely for the purpose of lubricating the canal, and the second again, well greased, is carried onwards.—*Med. Times and Gazette, July* 21, 1855, *p.* 63.

77.—*Apparatus for Injecting the Bladder.*—[Mr. Wormald, of St. Bartholomew's Hospital, connects the catheter with the syringe by means of a few inches of India-rubber tubing. This prevents all jarring of the instrument. Mr. Collingwood, of Camberwell Green, uses a little apparatus for the same purpose, and which is a still further improvement.] Its principle is the employment of hydrostatic pressure instead of a syringe. It consists of a piece of elastic tubing, the size of a quill, and about four feet long, to one end of which a little India-rubber funnel is attached, its opposite end terminating in a widened opening. The latter is fitted over the end of the catheter, which it grasps tightly, accommodating itself to any size. When all is ready, the funnel end is held up at arm's length, and water is *simply poured in* from a jug. The pressure of the column of fluid suffices to fill the

bladder, without the least shaking of the catheter, or other inconvenience. If it is wished to empty the bladder again, all that is necessary is to let the funnel fall into a proper utensil. Besides those just mentioned, the apparatus has great advantages in simplicity, cheapness, durability, &c., over the syringe, and might well take the place of the latter in lithotrity cases. It may easily be carried in the waistcoat pocket, and there is nothing in it likely to excite the fears of the most timid patient. It possesses a further merit of being easily convertible to other uses than that for which it was originally intended; as, for instance, in evacuating the female bladder; if the tube be fitted to the end of the catheter, the urine may be conveyed away by the flexible tube, without any need for introducing the utensil into the bed.

Mr. Collingwood's little apparatus is, we believe, kept by most instrument-makers; those which we have been shown have been made by Mr. Bigg, of St. Thomas-street.—*Med. Times & Gazette, June* 16, *p.* 595.

78.—*Method of Removing Foreign Bodies from the Urethra and Bladder.*—Mr. M. H. Collis recommends incision in the mesial line, in front of the anus, for the removal of foreign bodies from the bladder. He says: "The membranous part of the urethra is not more than an inch to an inch and a half distant from the verge of the anus; hence we can strike it with ease and certainty, when the perinæum is in a healthy condition. By drawing the rectum down with the forefinger, while an assistant raises the bulb towards the pubes by the staff, the knife can be inserted with safety to the depth of an inch or so in the mesial line, and then, by depressing the curve of the staff, the point of the knife comes directly in contact with the membranous portion. If the incision be made accurately in the mesial line, no vessels will be wounded; and as the membranous portion only is opened, there can be no extravasation of urine forwards. The incision in the integuments might be enlarged by commencing it further forwards, if necessary, to give room for the extraction of a larger substance, or for the introduction of the finger and forceps together. . . . . Even when the fragment of catheter or other foreign body has slipped into the bladder entirely, the central incision would seem to be the easiest and least dangerous operation for extracting it."—*Association Med. Journal, July* 18, 1855, *p.* 652.

79.—INJURY TO THE PERINÆUM: RUPTURE OF THE URETHRA, WITH EXTRAVASATION OF URINE.

By John Shepherd Fletcher, Esq., Manchester.

[The patient, who was aged 29, was passing over a trap-door when it gave way, and he fell with the perinæum on the edge of the hard flag.]

I saw him in fifteen minutes after the accident. He had then passed a large quantity of blood and urine, and was still bleeding very freely from the urethra; he was faint from standing, and had some pain in the perinæum, but no swelling, and but little tenderness, without any desire to pass urine. I made an attempt very gently to pass the catheter, but could not succeed, as it was obstructed near the prostate. I withdrew it, and ordered tepid fomentations, with an opiate, and saw him again in about two hours. The bladder was now much distended, causing considerable pain, and strong desire to pass urine. He had no swelling in the perinæum. I again tried to pass the catheter, and succeeded, by using a large instrument with the utmost gentleness, keeping it in the median line, and against the upper wall of the urethra. I could distinctly feel, however, that it passed through a long track of apparently torn passage. The bleeding had continued very free. I drew away twelve ounces of normal urine, unmixed with blood. The patient was ordered to allow the catheter to remain in, and to continue to use fomentations and opiates.

[On the third day he had passed a restless night, there was pain on pressure over the hypogastric region. There was not the least swelling to indicate extravasation. He was *ordered a saline mixture*, calomel and opium pills, and hot fomen-

tations. In the evening the catheter got displaced, and then there was a return of the hemorrhage. On the fourth day urine passed freely by the instrument, pulse 120, abdomen tympanitic. In each iliac region there was a slight puffiness; in the evening the swellings in the iliac regions were larger, but there was not the slightest swelling in the perinæum, or in the neighbourhood of the prostate, and he seemed much better. On the fifth day he was worse, and had constant delirium. There was no swelling in the perinæum or scrotum. On the sixth day he was in every respect worse, the urine passed by the catheter in normal quantity. On the seventh day he died, no swelling having appeared in the perinæum or scrotum up to his death.]

Examination of the Body, thirty-six hours after death. Putrefaction was rapidly going on in and about the pelvis. There were vesications and great swelling of the scrotum and neighbouring parts; but this was altogether the result of putrefaction since death, as not the slightest trace existed a short time previously. On cutting through the abdominal walls, we found, immediately behind the recti and other abdominal muscles, a large quantity of thin-looking pus, mixed with some blood; this extended upwards into the sheath of the rectus muscle on each side, and was contained between the posterior surfaces of the abdominal muscles in front and the transversalis fascia and peritoneum behind, on each side. It had, in extending backwards, separated the fascia and peritoneum from their attachment to the inner surfaces of the posterior portions of the transversalis muscle; hence the doughy swelling, extending as far as the loins, noticed on the day preceding his death. Below, the fluid could be traced as coming from behind the pubes, having the central portion of the transversalis fascia internal to it, and the posterior surface of the symphysis pubis, covered only by periosteum, in front of it. On injecting the bladder, by means of a catheter along the urethra, fluid was seen to escape slowly immediately behind the pubes, from the neighbourhood of the membranous portion of the urethra. There were traces of very extensive peritonitis, with flakes of lymph one-fourth of an inch thick. On cutting into the perinæum, we found that around the urethral bulb there was much effused blood; and from the bulb to the prostate gland, which was itself normal, the urethra was torn, there being no distinct canal, but a sort of sac, bounded by softened cellular tissue, infiltrated with blood.

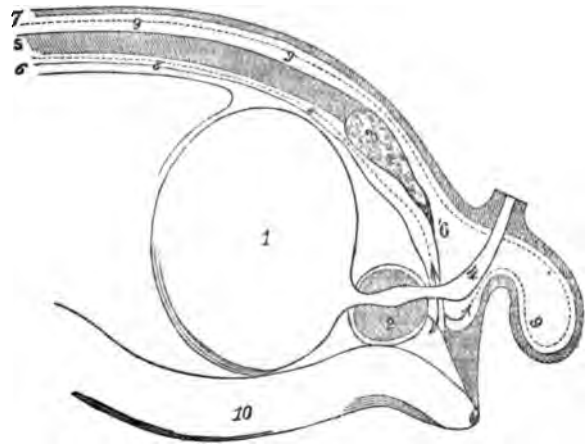
Remarks.—The preceding case presents some features which are not of frequent occurrence. It is a striking example of the results to be looked for from an injury to that part of the urethra behind the anterior portion of the deep perineal fascia, and is instructive as to the symptoms following such an injury, as well as to what would, in another similar case, be the most appropriate treatment. It will have been observed, from the account given of the *post mortem* appearances, that the extravasated urine did not take its most usual course after injury to the urethra with the escape of urine; this usual course being, that the urine escapes under the superficial perineal fascia, and is by this fascia directed forwards under the superficial fascia and integument covering the scrotum; whence, continuing its course, it finds its way under the superficial fascia of the abdominal walls, where it is found outside the external oblique muscles and their tendons, between them and the superficial abdominal fascia. This is the direction taken by urine escaping from all injuries to the urethral canal anterior to the front layer of the deep perineal fascia, and also from laceration behind that fascia, if it as well as the urethra should be injured. In all these cases, the fact of urine escaping is quickly made manifest by the swelling, first in the perinæum, then in the scrotum, and afterwards on the lower part of the abdominal walls; and it is almost too well known to need mention here, that the only hope of safety to the sufferer is by free incisions into the perinæum and other swollen and perhaps gangrenous parts.

It is not, however, especially to this class of cases that I am desirous of calling attention, but to another and much rarer form, of which the case I have just detailed is an example, where the injury to the urethral canal is behind the front layer of the deep perineal fascia. The course taken by the extravasated urine is altogether different, and does not cause any swelling in the perinæum to call our attention to the fact that urine is escaping from its proper channel, and causing *that destruction* which we know to be the result wherever it escapes. This *variety, although the* least frequent, is by far the most dangerous in its results, as,

in the first class of cases, recovery may be hoped for, and will frequently occur, without even the aid of the surgeon's knife; but, in these cases, such a result will never take place unless through the most timely and energetic treatment.

To understand fully the two courses which extravasated urine may take, according to the part of the urethra injured, it is absolutely necessary that we should have a clear knowledge of the deep perineal fascia; and as, in some respects, I believe this fascia to be incorrectly, or at least not fully described, in most anatomical works, I may perhaps be excused for briefly giving what I believe the more correct description, so far, at least, as my own dissections show.

The deep perineal fascia, or triangular ligament, as it is sometimes called, is described generally as a strong triangular portion of fascia, consisting of two layers —an interior and posterior—extending across beneath the pubic arch. "The two sides are firmly attached to the rami of the pubes and a small portion of the ischia," becoming continuous and mixed up with the periosteum on these bones. This description is strictly accurate in regard only to the anterior layer, to the lower part of which is joined the superficial fascia of the perinæum, after it has passed under the transversalis perinei muscle; but the *posterior layer* of this fascia I believe to be only a part of the pelvic fascia continuous with the transversalis fascia from above and the obturator fascia from each side, which are only different parts of one continuous membrane. It extends across the back of the upper part of the pubic arch, and is attached by cellular tissue on each side to the margin of the pubes and a small part of the ischia; but it is not lost in the periosteum covering these bones. At its lower part, like the anterior layer, or true triangular ligament, it gives passage to the urethra, and sends backwards upon it and around the prostate a continuous fascial investment; and, below the urethral opening, it is continuous downwards and slightly forwards, to join with the lower margin of the anterior layer of the deep perineal fascia, where the two terminate in a tolerably distinct margin, from which, however, there is continued a less strong process of fascia on to the termination of the levator ani muscle, which, with the anterior layer or true triangular ligament, completes the division of the perinæum into a superficial and deep compartment, between which this fascia extends as a very strong septum above and a more delicate one below. It was behind this anterior layer of the deep perineal fascia, and the fascia continued from it below on to the levator ani—that is, in the back part of the membranous or commencement of prostate portions of the urethra—that the urethral canal was ruptured in this case; and it will be seen *that the urine would be prevented from coming forward*



1. Bladder. 2. Prostate. 3. Pubes. 4. Urethra. 5. Abdominal muscles. 6. Line indicating transversalis fascia—the lower part of it representing what is called the posterior layer of the deep perineal fascia. 6. Line indicating anterior layer of deep perineal fascia or true triangular ligament, joined by superficial fascia below. 7. Integument and superficial fascia of the abdomen. 8. Dotted line and arrows, indicating the course taken by the extravasated urine in this case. 9, 9, 9. Dotted line indicating course *taken ordinarily by* extravasated urine. 10. Rectum.

by the anterior layer of the deep fascia, in consequence of which we were without swelling in the perinæum, previously considered as a constant and immediate symptom of extravasated urine from rupture of the urethra. Prevented from coming forward, the urine pushed back what is called the posterior layer of the deep perineal fascia (but what in reality I believe to be a part of the pelvic fascia), separated it from the back of the symphysis pubis, and then getting behind the abdominal walls (where, it will be remembered, swelling was first present in each iliac region on the third day after the injury) pushed inwards the transversalis fascia and peritoneum, and at last got into the sheath of the rectus muscle. It might also find its way into the areolar tissue around the rectum and at the base of the bladder.

The instructive features in this case I conceive to be the fact that we *may have extravasation of urine from a rupture of the urethra, without any swelling in the perinæum*—a fact which I have nowhere seen stated before; that this is far more dangerous in its consequences than the ordinary kind; and that the absence of swelling depends upon the unusual course taken by the extravasated fluid. It will be remembered that the daily reports of this case show an entire absence of swelling from the perineum up to death; and, in the face of the fact that we had a constant discharge of urine in good quantity through the catheter, I scarcely feared, until the end of the second day, any extravasation of fluid of any kind, either blood or urine; but on that day general symptoms pointed to some serious mischief; and the abdominal swelling on the third day was still more serious; its cause was shown by the *post mortem*.

As to the treatment of similar cases, I think the result of this case most instructive; and I should, in any future case where, in injury to the urethra, I had reason to fear escape of urine, even though there be no swelling in the perineum, provided there be general symptoms of extravasation, feel at once called upon to make a free and deep opening into the perineum. In such a case the incision must not be merely superficial, but must go through the anterior layer of the triangular ligament; and, in order to avoid wounding (should it not be already injured) the artery of the bulb, the incision must be made in the exact mesial line. It may be a question also whether or not, the urine having found its way behind the abdominal parietes, it would not be prudent to make an opening through these, cutting through the integument, superficial fascia, and three muscles. Such a course would, I think, be quite proper; and had it, as well as the deep incision I have spoken of, been made early in this case, it is within the range of possibilities that there might have been a more fortunate termination; but, in the face of an entire absence of swelling in the perineum, and of the improbability of there being much urine extravasated, we did not consider it justifiable. I am now of opinion that I should take a different view of any similar case, and should at once resort to the free and deep opening.

The very rough outline of the position of the several parts will probably aid in conveying a correct idea of the course taken by the urine in both kinds of extravasation.—*Association Med. Journal, Sept.* 21, 1855, *p.* 865.

80.—*Gutta Percha.*—M. Ellefsen recommends a solution of this substance in swelled testicle and fresh wounds, on account of its adhesiveness and making an air-tight covering. He dissolves the gutta percha in bisulphuret of carbon, and spreads the substance over the part affected. It immediately becomes dry and stiff, and forms a thin, tight, and adhesive covering, which loosens at the edges after three or four days, when it must be repeated.—*American Med. Monthly, Jan.* 1855, *p.* 67.

SYPHILITIC AFFECTIONS.

81.—MODE OF ACTION OF COPAIBA.

By Dr. A. Mercer Adam, Dumfries.

[Recent experiments and observations have sufficiently proved that the active principle of the balsam is chiefly eliminated by the kidneys, and exerts a healing influence on the inflamed mucous membrane of the urethra, by coming directly in contact with it dissolved in the urine. Dr. Roquette, of Nantes, in some very interesting papers, relates several cases which seem to prove incontestably its local action.]

In one of these cases the patient had an orifice in his urethra, midway between the meatus and the scrotum, which was occasioned by his having, when a youth, placed a brass curtain-ring round his penis, which becoming erect, was injured thereby, and required surgical aid to remove the constricting body from it. The urine of the patient was always voided through this posterior orifice; but when this opening was closed up it flowed freely through the natural outlet. This young man having contracted gonorrhœa, was treated with copaiva, in the usual way; and Dr. Roquette found that the *posterior* part of the urethra *alone*,—viz. the portion of the canal traversed by copaiviferous urine,—was soon benefited by the action of the medicine. But when the patient was then directed to inject some of his urine, impregnated with the active principle of the copaiva, into the anterior portion of the canal,—he very speedily became completely cured. Hence Dr. Roquette advises us, in administering copaiva, to give it in such a manner as that it may be eliminated by the kidneys, and may not be carried away by the bowels.

Shortly after reading Dr. Roquette's paper, last winter, a patient came under my care for *chronic* gonorrhœa, whom it was impossible to treat by exhibiting copaiva in the ordinary way, on account of very great irritability of the stomach, and intense idiosyncratic disgust for the drug. I thought at first of adopting Velpeau's plan, and administering the balsam in the form of enemata: but I resolved first to test the correctness of Dr. Roquette's views, and accordingly directed him to inject a weak mucilaginous solution of copaiva into the urethra. By this means he was completely cured in four days, without experiencing any pain or inconvenience. I have since treated one or two cases of *chronic* gonorrhœa in the same way, and with equal success.

Does not all this seem to warrant and confirm the assumption that copaiva acts locally on the mucous membrane of the urethra, by means of its active principle, which is held in solution in the urine? And if so, may we not yet be able to treat puriform discharges from the urethral and vaginal mucous membranes, by means of weak copaiviferous lotions, instead of by the internal administration of a drug so nauseous and liable to derange the digestive functions?

If further proof were needed that copaiva exerts its therapeutical influence by acting locally on the mucous membrane in gonorrhœa, it might be found in the admitted inutility (by Ricord, Sigmund, and numerous other high authorities) of the drug in those cases of gonorrhœa in the female, in which the disease is confined to the vagina, and does not affect, to any great extent, the urethra, and the parts surrounding it.—*Med. Times and Gazette, August* 18, 1855, *p.* 164.

82.—*Percyanide of Mercury in Syphilitic Ulceration of the Tongue.*—Mr. Wormald, at St. Bartholomew's Hospital, has recently been employing a saturated solution of the bicyanide of mercury, as an application to syphilitic ulcerations, abrasions, &c., on the tongue. Without speaking very enthusiastically respecting it, he states that he has obtained more satisfactory results from it than from any remedy he had previously employed. The solution is painted over the affected part, care of course being taken that the patient do not swallow any quantity of it. The extremely intractable nature of this form of syphilis is matter of general remark.—*Med. Times and Gazette, July* 21, 1855, *p.* 63.

DISEASES OF THE SKIN.

83.—THE MODERN TREATMENT OF CHRONIC DISEASES OF THE SKIN.

By Thomas Hunt, Esq., Surgeon to the Western Dispensary for Diseases of the Skin.

[During the last eight or ten years, the pathology and treatment of cutaneous affections have been very much improved. Cases of extreme difficulty do still occasionally occur, which are very annoying to both patient and practitioner. It is with a view of lessening their number that the author offers the following remarks:]

It is unnecessary to observe that these diseases are generally of constitutional origin, and that they will very rarely yield to local treatment; but it is important to remark also, that even those local affections which are contracted by contagion or other local causes, often become, as it were, entangled with other morbid influences, and cannot be treated effectually without due regard being paid to their systemic complications. Thus scabies, porrigo, sycosis, and certain forms of pityriasis, though demonstrably dependent on parasitic development, become, under certain circumstances, not only constitutional but endemic diseases. Hence the well-known difficulty often experienced in curing both scabies and porrigo by topical appliances. The difficulty vanishes when once the general *malaise* is detected and removed. Children crowded together in very large numbers in one habitation, and fed on one unvaried diet, almost uniformly become affected by endemic disease of the skin, call it by what name you will. No cleanliness of person or household, no draining nor ventilation, no plentifulness nor purity of food, no local treatment, will either prevent or remedy this wholesale succumbing to parasitic influence. A thorough and frequent change of diet, a change of habits and of air, with active exercise away from the house; these are all that are required to remove the difficulty. I have repeatedly been consulted about numerous cases of scabies and ringworm occurring in large schools, easily cured for a time by local treatment, but perpetually recurring. No trouble has been found when once sufficient changes have been made in the diet, habits, and air. The evils of crowded dwellings are indefinitely multiplied by identity of food and habits. Trampers and costermongers rarely suffer from over-crowded dormitories. They do not feed together, nor breathe nor associate together during the day. The emanations from their lungs and skin are, therefore, less poisonous to each other; the excreta contain a greater elemental variety of *effete* matter; thus the dose of each individual poison so excreted, becomes less in quantity, and consequently less injurious to the individual by whom it is absorbed. I believe there is a great deal of truth hidden under this view of the case, although I may not have succeeded in expounding it intelligibly.

But with regard to diseases originating in the system, from some internal derangement, the case is different. After due attention to the health, a kind of specific or alterative course of medicine is generally required. This is especially the case with the scaly group of diseases, lepra, psoriasis, and pityriasis; and of these specifics, mercury, iodine, and arsenic are the chief. In regard to the latter, I find that those writers who recommend arsenic the most sparingly, actually use it the most liberally, and trust it the most confidently. Those who extol iodine, almost invariably prescribe it in union with arsenic, and sometimes with mercury also. Arsenic, which is the efficient remedy, is thus made to occupy the second place, whereas, in fact, it is the principal, and its union with iodine and mercury, often without in any degree adding to its therapeutic efficacy, just serves to make it unmanageable and dangerous. Indeed, my own experience justifies me in asserting that, if there be any efficient medicine more safe and manageable, in careful hands, than another, it is arsenic united with chlorine or potass; but if there be any medicine more dangerous and unmanageable than another, it is the compound of arsenic, iodine, and mercury, known by the name of "Donovan's solution."

Nevertheless, the unfounded prejudice entertained by the public (and shall I *say, in some degree*, by the profession?) against arsenic, as a medicine,—a preju-

dice fostered and augmented by some silly accounts from Germany, lately published in the popular periodicals, and to the truth of which I have ineffectually challenged the editors to the proof,—this prejudice, I say, throws a practical difficulty in the way of efficient treatment; and I have consequently been for years anxious to discover some medicine not less sinning, but less sinned against, than arsenic, as a substitute for it.

Three anti-squamous, or "anti-scorbutic" remedies have of late been extolled by the Medical press, namely, *Urtica*, *Galium*, and *Cod-liver Oil*. I am surprised that any author should have mentioned the urtica as a new remedy. Fifty, if not a hundred, years ago, the stinging nettle was "*the* cure" for nettle-rash, and other eruptions, used by the country people. The same observation applies to the Galium Aparine, which has had for centuries a similar reputation.

The *Urtica Urens* (dwarf stinging-nettle) I tried in decoction many years ago. It appeared to exercise no influence over the system other than that of a mild diuretic, and certainly has no specific power over cutaneous disease. It relieves those aggravations of disease which depend upon imperfect action of the kidneys and the skin; but this is just as easily effected by colchicum, antimony, taraxacum, digitalis, and other vegetable diuretics and diaphoretics.

The *Galium Aparine* (clivers, or goose-grass,) probably acts in a similar way. It is certainly no specific for lepra, and I greatly doubt if it will, in any case, supersede the necessity of administering arsenic. Two or three years ago this medicine was, however, mentioned in the periodicals by practitioners of high repute as a remedy for lepra, and I consequently determined to give it a trial. In order that there might be no mistake, I obtained the green and fresh herb from the fields near Kentish Town, boiled it down in as little water as possible, after the method of making decoction of sarsaparilla, and directed the patient to take a wine-glassful, or as much more as the stomach would bear, three times a-day. I took care that the decoction should be always fresh and clear, and when it could not conveniently be prepared for the patient, he was supplied with the plant either fresh or carefully dried, and directed to boil it himself. It was thus administered or prescribed in about twenty cases. Of its effect in ten of these cases I am not able to give any satisfactory report. Of the remaining ten, six were cases of lepra or psoriasis, most of them severe and obstinate, two were cases of eczema, one of acne, and one of lichen. In the scaly class the benefit was the most obvious, but in every case only temporary. The most successful case was that of a young man who had suffered from childhood from psoriasis diffusa. Living in the country, his mother was recommended, when he was about 12 years old, to try the expressed juice of the "clivers," which he took with such benefit that he thinks it nearly cured the disease; but the symptoms returned under its use. He was ultimately cured by arsenic, which failed until the patient adopted an exclusively vegetable diet. He was of a full plethoric habit, subject to febrile reaction and constipation. I found the decoction of the galium very useful in the intervals during which it became necessary to suspend the arsenical course, and likewise occasionally in conjunction with the mineral itself.

In four other cases of scaly disease, temporary benefit was certainly derived from the galium, but in a fifth case no benefit whatever; and as in no case did it appear to exert a permanent or specific influence on the issue of the treatment, I have of late had recourse to remedies on which I could place more reliance. In other forms of cutaneous disease, as little success attended its use. In one of the two cases of eczema it did no good, and made the patient sick; in the other, the patient got worse under its use. In the case of lichen, some slight temporary improvement was effected; in that of acne no advantage whatever accrued. I should feel disposed to give this remedy, as well as the urtica, a much more extended trial if any facts could be brought to my knowledge which would justify such a course.

Cod-Liver Oil.—I have never heard that Cod-Liver Oil had been extensively useful in skin-diseases, (excepting those of strumous origin,) until I happened to meet with the widely-circulated observations of Dr. de Jongh. Although some of the cases detailed by him are far from satisfactory, and calculated to excite a suspicion that there is a considerable bias in favour of the oil recommended by the writer, as being an article of commerce, yet I resolved to put it to the test of experiment, and I have *now prescribed it* in about 120 cases of skin disease. It is

bare justice to Dr. de Jongh to say, that the success attending its use in dispensary practice fully satisfies me that he has not exaggerated its value. It is not possible for me to form an accurate estimate of the comparative merits of the different fish-oils in the market; but to avoid the chance of adulteration, and to secure uniformity of quality, I have invariably prescribed, in the cutaneous cases herein alluded to, the oil sold in bottles with Dr. de Jongh's seal upon them.

In tubercular affections, as might be anticipated, the most good resulted from the oil. I will first specify a few cases, and afterwards give a general account of the whole.

Acne.—*Case* 1.—*Acne Indurata.*—S. W., a middle-aged single woman, of constipated habit, had been disfigured with the larger and deeper-seated tubercles of acne indurata for twenty years. Her face was literally covered with them, and her shoulders were sometimes similarly affected. She improved slowly under arsenical treatment, which was continued for nearly three years; but the disease did not get well, and the medicine began to disagree with her. She had a slight sanguineous discharge from the bowels, which might have been occasioned by the drastic purgatives required to keep her bowels open. She also lost flesh, and complained of a troublesome cough. She now desisted from the arsenic, took the cod-liver oil in teaspoonful doses thrice a-day for a month, and at the end of that period, her health was greatly improved, she gained flesh, and no fresh tubercles had become visible in the face after the first week of this treatment.

Case 2.—*Acne Indurata.*—H. C. This was a very similar case to the above, except that the patient was married, though without family, and had only suffered with the disease for two years. There was, likewise, more regular pustulation, and the tubercles were more superficial. She was troubled with occasional headaches, and menstruated very irregularly. She was treated variously for fourteen months, according as her symptoms varied, and with considerable improvement in the local disease; but by far the most marked improvement was observable under the cod-liver oil, which she has now taken in small doses for two months. There were no indications of a strumous habit about this patient.

Case 3.—*Acne Rosacea.*—W. P., aged 48, temperate and otherwise healthy, had been disfigured for two years with an eruption of red tubercles on his nose and face, with patches of red pimples on other parts of his body. He improved slowly for six months under arsenical and purgative medicines, but recovered much more rapidly when the use of the cod-liver oil was added to the other treatment.

Case 4.—*Acne Rosacea.*—W. R., aged 46, a healthy subject, had been also suffering for about two years from a red eruption of tubercular character on the nose. He took the oil for a fortnight only, with no other medicine, and there was, in this short time, a decided improvement in the disease. He then absented himself, and the result is not known.

Lupus.—Lupus is a comparatively rare disease. It appears in two forms: the ulcerative (lupus exedens) and the non-ulcerative (lupus non-exedens). Both begin insidiously, and generally deceive both patient and surgeon into the opinion that there is nothing serious or permanent, either in that little scab which covers a minute ulcer—which ulcer, left to itself, will assuredly spread until it has destroyed every feature of the face, if the patient lives long enough—or in that little dull red patch, covered with a thin scale, which, left alone, will spread over the whole face and neck. Every therapeutic fact connected with a disease which is seldom cured, and as seldom kills, but makes life miserable, must be acceptable to the profession. Arsenic is the only remedy for lupus exedens yet acknowledged by the profession. A barbarous practice once prevailed of applying arsenic locally to the ulcer. This gives great and long-continued suffering, and does no permanent good. It does good so long as the arsenic is being absorbed into the blood, and no longer. I have demonstrated, in my work on the Skin, that it may be administered internally so as to destroy the disease. In lupus non-exedens, this is not so sure a remedy.

Case 5.—*Lupus Exedens.*—J. W., a widow, aged 67. Has suffered from lupus exedens fifteen years. She applied at the Dispensary for Diseases of the Skin, after being under various treatment.

February 6th, 1855.—She is in good condition, but not in good health. There *is no reason to suspect* a syphilitic taint. She has a large family, all healthy, and

never had any genital disease. But her nose is gone, and the place it occupied is covered by an ulcer. The soft palate is also ulcerated, and the disease has extended to the bones. Part of any fluid which is swallowed is returned by the nose. There is no offensive odour, except once a month, corresponding with the menstrual period. The catamenia ceased when the disease commenced, at the age of 52. She took the cod-liver oil alone for five or six weeks, at which period she could swallow better, and there was a great improvement both in her general health, and in the appearance of the ulcers.

March 13th.—Continue the oil, and take liq. arsen. chlorid. ℥x. ter in die, with an aperient pill at night.

April 7th.—A piece of bone has exfoliated from the nose. Continue the medicine.

May 1st.—The conjunctival membrane inflamed; eyelids puffed; sore on nostril looks less healthy. Discontinue the arsenic; persist in the oil.

June 5th.—Much better; health improving. Continue.

August 28th.—Very much better; external sore healed.

Case 6.—*Lupus Exedens.*—M. R., aged 22, single. A disease which commenced twelve years ago in the nose, now occupies the whole face, which is more or less scarred and ulcerated in almost every part, the non-ulcerated portion being red, hypertrophied, and slightly scaly. Her nose is nearly eaten away, flattened and misshapen, and a face evidently once handsome and delicate presents a most frightful and repulsive appearance.

June 19th, 1855.—Health very good; bowels rather constipated; catamenia regular: the face worse at these periods. The usual dose of chloride of arsenic was prescribed for her, with some compound rhubarb pills.

26th.—Complains of shortness of breath; face puffed. Discontinue the arsenic. Continue the pills, and take a teaspoonful of cod-liver oil thrice a day.

August 28th.—She has persevered regularly for two months, taking no other medicine, and using no other means of recovery. The ulcers are all healed; the face less swollen, and less angry-looking. Health good.

In the former case the arsenic was given in conjunction with the oil, and might be said to have shared the credit of the cure. In this case the oil alone appears to have been happily the means of benefit; I say happily, because nothing would rejoice me more than to find, in any case, an efficient substitute for arsenic.

Case 7.—*Lupus Non-Exedens.*—G. K., aged 54. A tubercular disease commenced in the face when he was only two years of age. It has now extended into the neck, and palms of the hands. The mucous membrane of the mouth and tongue is also affected. After taking the oil for a fortnight, there was a marked improvement.

The progress of lupus is so extremely slow, that I am by no means disposed to draw any general conclusions from temporary improvement; but enough has been said to justify a long and persevering trial of this harmless remedy. I have occasionally applied it locally to the non-ulcerated cases, and I think with benefit.

There is no cutaneous affection in which the cod-liver oil has proved more effectual than in *sycosis menti* or *mentagra.*—*Med. Times and Gazette, Sept.* 15, 1855, *p.* 258.

84.—PORRIGO *v.* ECZEMA.

By Dr. Benjamin Godfrey, late Surgeon to the Enfield Nursery.

In the treatment of various diseases of the skin of children, the practitioner is never more puzzled than he is with the above disorders. Eczema and porrigo simulate each other, and often render the diagnosis difficult, and the treatment uncertain. It is not my intention to define the exact outward appearances which these diseases present, for that is ably described by many of our medical writers. It is absolutely necessary for us to arrive at the right conclusion, whether porrigo or eczema exists in the patient we may have to examine; for the two diseases require entirely different treatment. Porrigo is to be cured by outward remedies; eczema by internal.

Porrigo of the scalp, or *porrigo favosa*, is supposed to be the product of direct

or indirect contagion. I have seen it develope itself without the slightest trace of contagion. I have seen the scratch of a cat produce a porrigo; a latch of a door, or a burn produce the same, in fact any irritant applied to the surface of an enfeebled child, will call out the pustular tendency of the system, and produce porrigo.

Several cases have come under my care where purulent scabies has caused porrigo; one case in particular I will mention. A child had scabies on the legs, hands, and stomach, it scratched the irritated pustules, and then rubbed its head, —porrigo was the result. Some years ago, I had a child under my care, who had fallen on the fire; a slight burn on the arm was the result; this speedily healed, and a porrigo appeared on the scalp. A child had a fall, and bruised its leg, a slight purulent discharge occurred, some of the matter was conveyed to the nose, and the head probably scratched,—a porrigo on the head and nose was produced. In these cases it really was no coincidence, but, I believe, absolute contact of matter from the wound to the head, and thus producing disease. How often have medical men seen vaccination produce porrigo; many, to their cost, have been unjustly blamed for using supposed diseased matter, whereas the cause was in the child, conveying matter from part to part. Another case I might mention. A child had herpes labialis; the child was seen by its parents to pick its lip repeatedly, and then scratch its head,—in a week from that time porrigo was produced; this porrigo certainly had more the appearance of porrigo-impetiginoides, of some writers, but, nevertheless, true porrigo. It may not be out of place if I should cursorily endeavour to delineate the outlines of the two diseases.

Porrigo first makes its appearance by a slight redness on the skin, which increases day by day until, in the course of a few days, a distinct pustule, or cluster of pustules, makes its appearance. They are small, white or yellow umbilicated elevations, which discharge a thick purulent fluid, which speedily concretes, and forms a crust.

. Eczema, in the first stage, resembles porrigo in its general appearance, but unlike porrigo, it appears often in a night, generally in a day or two at most, and then discharges a thin serous fluid, not so quickly coagulating, but more irritating. The colour of the elevation does not guide us in the diagnosis. Often the matter of eczema is as yellow as that of porrigo. In eczema the vesicles appear as if they had just arisen from the surface, acuminated and glistening.

Porrigo is to be cured by external remedies. In the first stage no ointment is so good as the simple mercurial ointment. In the second stage, where inflammation is less and a scab has formed, the crust is to be removed with a quill or a paper-knife, and the nitrate of mercury ointment applied to the raw surface night and morning. It is useless to apply any unguent to the incrustation, for that would be in vain; every particle must be removed, before any remedy can be applied.

Internally.—Cod-liver oil three times a day, and a simple rhubarb powder once or twice a week. A simple rhubarb powder should always be given before cod-liver oil is administered, as it prepares the stomach to receive it kindly.

Eczema is to be cured by internal remedies. The unguents used for the cure of porrigo are not only useless, but injurious. They irritate and often cause excessive pain. Iron is the remedy which in no case have I ever found fail. The tincture of muriate of iron from ten to twenty minims three times a day, according to the age of the child, is the best preparation for this disease. The affected part should be daily washed with oatmeal gruel, and occasionally a little powdered starch with oxide of zinc will aid the cure. Many cases I have cured without any external application, thus proving it to be a constitutional disease only to be eradicated by medicine. I had a child under my care, covered with eczema. Its back, thigh, arm, legs, and head presented a very pitiable sight. The morbid cuticle dried up and fell off, the secretion formed large scabs, the under surface was entirely raw. I placed this child, aged 4 years, under the influence of the iron, and in a few weeks the child was perfectly cured. Another case I saw ten months ago. A little boy, aged 3 years, a strumous, delicate-looking child, had been under treatment for porrigo for two years. He had ointments of all colours and kinds applied by different practitioners, but all of no avail. His head was literally encased with dried crust and morbid cuticle. On removing a small portion of the crust, the skin

appeared red, painful, and irritated, which at once decided it to be eczema. When porrigo has gone on so far as in this case, generally, on removing the crust, the skin underneath is healed. I immediately gave the child ten minims of the tincture of muriate of iron four times a day, preceded by a little rhubarb and magnesia at bed-time, and repeated once or twice a week. In two weeks the child's head was cured. In a few months the hair had grown quite luxuriantly and natural in colour. In this case no ointment was used. I have tried several cases for experiment, and all the cases of eczema I have cured by the internal administration of the iron. There are several other diseases of the skin which are benefited by iron. I have found almost all vesicular eruptions disappear under its continued use, whether it has been from the beneficial action in restoring the general health of the frame, or whether it has a specific action on that class of disease, I cannot say.—*Med. Times and Gazette, July* 7, 1855, *p.* 19.

85.—*Acne.*—CAZENAVE has recently recommended ammoniacal lotions, which form with the fatty matter of the follicles a soluble soap with an ammoniacal base; the hydrochlorate or acetate of ammonia answers equally well.—*American Med. Monthly, Jan.* 1855, *p.* 68.

86.—*External use of Cod-Liver Oil in Skin Diseases.*—The reader may find in the 'Medical Times and Gazette' for January 8, 1853, page 23, a short notice of the employment of cod-liver oil in certain forms of skin disease, more especially in Eczema. The remedy was then new in this country, and the trials on which our observations were founded had been made in St. Bartholomew's Hospital, by Mr. Paget, to whom it had been recommended by Professor Malmsten, of Stockholm. Since then the oil has, we believe, been extensively used in England, and with much the same favourable results which Mr. Paget obtained from it. We refer to the matter again in order to allude to a paper, recently published by Professor Malmsten himself in a Berlin Medical Journal on the various uses of the fish oils, and more especially on their external employment against intractable skin diseases. The practice of the Swedish physician appears to have been most successful; and amongst the cases narrated as having been cured are examples of chronic and impetiginoid eczema, impetigo, psoriasis, chronic pityriasis, and prurigo formicans. The plan adopted differs somewhat from that we have seen followed in this country. Instead of using the oil merely as an ordinary liniment, the affected parts are directed to be kept constantly soaked with it. If the whole skin be affected, the patient is made to lie in bed; all his body and bed linen being saturated with the oil. This system is continued until the skin is returned to health, the patient being allowed an alkaline bath once a week, but no other washing or change of clothes being permitted. To most people the disagreeable nature of such a measure will constitute an almost insuperable objection to its use. We must remember, however, that Professor Malmsten assures us that he has cured, by its help, cases of the most obdurate and distressing kind. The treatment does not appear to have required, as a rule, more than about two weeks; and is said to have shown a wonderful influence in restoring flaccidity, clearness, and healthy colour to the diseased integument. The majority of cases of prurigo formicans baffle, we suspect, the skill of all our English Dermatologists; and in these the patients would generally be found willing to accept a cure by any possible method, without regard to its disagreeableness. Although this author incurs a little suspicion from the rather indiscriminate recommendation of his remedy, yet, on the whole, we think he well supports his assertions. Speaking generally of his facts, they appear to us to bear out the conclusions which we expressed in the former report on this subject, and which we will again quote:—"The class of cases for which the oil seems most applicable is that of chronic eczematous eruptions, unattended by acute inflammation or general pyrexia. In abating the troublesome itching, which frequently accompanies this disease, especially in old people, it has manifested powers superior to those of any other application with which we are acquainted.—*Med. Times and Gaz., July* 7, 1855, *p.* 8.

87.—*On the Abortion of the Variola Pustule.* By Professor Delioux.—In this paper M. Delioux speaks strongly in favour of the early employment of abortive applications. Mercurial ointment should be freely smeared twice a day over the whole face and upper part of the neck, its application to the latter part acting advantageously upon the accompanying inflammation of the pharynx or larynx. The old need not be washed off before the new is applied, and in this way a layer is kept constantly on. It must be continued until the eruption is found to consist of merely hard, dry, papular tumours. Salivation must be guarded against; but it must be distinguished from the increased secretion of saliva often met with in variola. Although entertaining a high opinion of this application, the author has found patients object much to its use in consequence of its appearance, and its spoiling the linen; and for such he has for the last two years employed collodion with great success. The pain, some declare to be the consequence of its employment, he believes arises from its being used alone; but if Trousseau's Elastic Collodion be selected, all inconvenience is avoided. This is formed of collodion 30 parts, Venice turpentine 1½, and castor oil ½ a part. When employed at an early stage it imparts a sense of coolness to the part; but if the pustules are ulcerated it causes pain for a few minutes. The contraction produced by the drying of the collodion causes some uneasiness, but rarely any pain, and the patient soon gets accustomed to it. Whenever any cracks in or detachment of the collodion are perceived, these must be repaired, and a new layer passed over the whole face—so that more or less collodion may require to be applied three or four times a day. Perseverance is required, but the result is highly satisfactory; for, wherever the collodion has remained applied, the pustules become flattened and effaced, and the skin so regains its normal appearance, that at the end of convalescence the existence of such an affection could not be suspected. Even, when from later application, and occasionally in early, abortion does not occur, the cicatrices are still far more favourable and superficial than they would have been had the eruption been left to itself. If a layer of pus collects under it the collodion should be pricked with a needle to allow of its being gently pressed out. In the Paris hospitals from 30 to 40 centigrammes of corrosive sublimate are added to every 30 grammes of the elastic collodion, and it is said with excellent results; but of this mixture M. Delioux has had no experience.—*Bulletin de Thérap.—Med. Times and Gazette, July* 7, 1855, *p.* 16.

88.—*Turpentine in Carbuncular Diseases.* By Dr. Thielmann.—Dr. Thielmann states that he has employed this substance with great success in a case of malignant pustule, and in a great number of cases of carbuncle, amounting to 342 since 1837. The treatment has been merely local, unless suppurating fever or other general symptoms called for interference. The turpentine was applied in every stage of the disease on a thick pad of charpie, evaporation being prevented by oiled silk. In most cases, a slight burning is at first produced, which only lasts for a few minutes. The epidermis becomes softened, and the mortified parts are quickly separated, without the necessity of the crucial incision. After the separation, it is still continued, as under its influence the healing is rapid. If, after each dressing (these being repeated night and morning), the patient complain of a continual burning, the lotion is to be sufficiently diluted with camomile tea, or the dressing is to be performed with this alone. The turpentine is suitable to all sloughy and atonic ulcers. The following is the formula for the preparation of the application:—Mix ʒj. of oil of turpentine with the yolk of an egg, and then add spirits of camphor ʒj., camomile tea lbj.—*Berlin Medicin Zeitung.—Med. Times and Gazette, Sep.* 29, 1855, *p.* 325.

89.—TRAUMATIC ERYSIPELAS, AND OTHER FORMS OF THE DISEASE, IN MILITARY LIFE.

By Dr. James Bird.

Without entering fully into the various divisions of the disease which have been

made by different authors, it may be conveniently considered, for the purposes of military surgery, as the external manifestation of constitutional disorder, or an impure state of the blood, caused by impeded assimilation and excretion; or as the direct impression of mechanical or chemical causes, producing inflammation of a part, and followed by purulent or poisonous matter generated in the tissue, from which, when carried by the veins into the general circulation, it may deteriorate the whole blood mass, and be succeeded by constitutional symptoms. The former is the symptomatic, the latter the traumatic or idiopathic varieties. These again, according to the anatomical seat and character of the effused material, may present themselves of simple, œdematous and phlegmonoid sub-varieties, which are generally the indices of the particular character of the blood lesion, or its comparative capacity for supplying corpuscular or non-corpuscular effused matters capable of organization. Such, too, will be valuable guides in practice as to the amount of antiphlogistic, or tonic and nutritive, treatment that may be necessary in this disease. Simple erysipelas, which more frequently affects the head and face, and is seen sometimes on the trunk of the body, is only accompanied by slight febrile symptoms, and makes its appearance on the cutaneous surface, of a pale rose-red, followed by little vesication, and terminating by desquamation of the cuticle. Its anatomical seat is chiefly in the papillary part of the derma and rete-mucosum. Erysipelas œdematodes, again, either follows, or may accompany the first variety, appears of a yellowish-red or brown colour, and may attack the face and scalp, or appears on the thighs, legs, and genitals. Its seat is in the skin and subcutaneous cellular tissue, and it is more frequently consecutive of anæmic conditions and constitutional cachexia. The swelling is boggy, and accompanied by disorganization in portions of the cellular tissue, very similar to what occurs in the low forms of cellulitis. Erysipelas phlegmonodes, which more commonly attends gun-shot wounds and other injuries, is a kind of diffused phlegmon. It is preceded by rigors and severe constitutional symptoms, to which succeed tingling pain, heat, deep-bright redness, and brawny tumefaction of the part. The local swelling has a marked tendency to run into ichorous suppuration, or gangrenous destruction of the cellular tissue, in consequence of the vascular strangulation by the inter-capillary effused material.

Natural Relation of the Disease.—In the preliminary considerations on the nature of erysipelas I have already intimated my opinion, that its phenomena have a marked analogy with those of the febrile exanthemata, and indicate a relation to gouty, rheumatic and scorbutic inflammations, in all of which the coetaneous inflammatory action of the internal mucous surfaces is a well-marked characteristic. All of them show an unmistakable tendency to a complication with gastric and biliary disorders, and are generally results of the same cold atmospheric humidity, from which an epidemic prevalence of all of them may proceed, as has been well marked during the present season. This relation of rheumatism and erysipelas will be yet more evident from the following comparison of the morbid state of the urine in both diseases, in which there is a very evident increase in the quantities of uric acid and extractive beyond a state of health. The results are indicated in the following tables, compiled from Simon's Chemistry:—

Rheumatism.—A man, aged thirty, whose urine threw down a copious red sediment on standing for two hours, and was 1017·2 of specific gravity.

——	Analysis 1.	Analysis 2.	Analysis 3.
Water	971·80	970·20	981·10
Solid constituents	28·20	29·8	18·90
Urea	12·20	9·00	8·00
Uric acid	1·70	1·04	0·56
Fixed salts	.....	5·59	2·34
Extractive matter	.....	14·70	8·00

Erysipelas.—In the febrile stage of this disease the urine has all the characters

of inflammatory febrile urine. Becquerel made two qualitative analyses of the urine of a man aged thirty-nine, who had erysipelas. Specific gravity, 1021· to 1023·1. The quantity passed during the twenty-four hours being, in the first and second analyses, 27·0 and 30·8 ounces respectively.

——	Analysis 1.	Analysis 2.	Analysis 3 of healthy urine.
Water	965·5	961·9	970·0
Solid constituents	34·5	38·1	28·
Urea	12·5	12·7	12.1
Uric acid	1·2	1·3	0·4
Fixed salts	.....	8·2	6·9
Extractive matter	.....	15·9	8·6

Other chemical pathologists have ascertained that, during the acute stage of erysipelas, while the urine presents all the characters of febrile urine, it is at the same time albuminous, and occasionally mixed with blood. These facts have been well established by the examinations of the urine, in erysipelatous cases, made by Becquerel, and by Dr. Begbie of Edinburgh. The presence also of albumen in the urine during the desquamative stage of erysipelas is noticed by Lehmann; and others have found that at this period of the disease, the urine is coagulable and charged with epithelium, as in scarlatina. The temporary albuminuria and the desquamation from the renal tubes, which have been thus found associated with erysipelas, and more particularly when the inflammation of the skin has been of great extent and idiopathic in its origin, are points of great practical importance in regard to this disease. They serve to show that this cutaneous affection, like other exanthematous diseases, is associated with derangement of the renal functions, and that both are coetaneously connected with the same blood lesion, the removal of which is an essential element of successful treatment. The efficacy of the tincture of sesquichloride of iron, which sensibly affects the secretion of the urine, while it restores the healthy nutritive powers of the red blood globules, probably depends on its power of producing these effects. The subject is one well worthy of further observation and experiment.

Treatment.—Such modified differences of innervation and vascular action accompany the varied forms of this disease, that no uniform plan of treatment can be applicable to all, and the attendant circumstances of each particular case must be fully considered, before an exclusive antiphlogistic or tonic mode of treatment be resorted to. In most cases a union of both will be found the most judicious system to be pursued, and must consist of both constitutional and local means. But as I have already exhausted much time in discussing the general subject, I shall confine myself to the detail of a few particular points in connexion with it. The remedial measures must of course consist of both general and local means. In regard to the former, all morbid secretions connected with gastric and biliary irritation must be evacuated by means of small doses of calomel, James's powder, and acetous extract of colchicum, combined with half a grain of opium, followed next morning by castor oil or any other eligible purgative. The impaired functions of the kidneys and skin are to be at the same time restored by means of either the acetate or nitrate of potass, given with the bicarbonate and nitrous ether, converted into draughts of effervescing citrate, by means of lemon-juice. If there be much red sediment in the urine, an ample allowance of beef-tea, to which a few drops of the liquor potassæ have been added, must be freely administered, with solution of quinine, as soon as the febrile symptoms have lessened, and the urinary secretion has been partially restored. The patient, unless plethoric in habit, must at the same time have plenty of nourishing but anti-bilious diet; and when vascular action is of the asthenic type, an allowance of wine may be necessary. The age, strength, and habits of the patient must also be taken into account. Occasionally both local and general depletion may be necessary. The *first can be best effected* by means of cupping-glasses, or the scarifications may be

effected with the point of a lancet, as practised by Sir R. Dobson. If the disease be of the phlegmonoid kind, and the extent of sero-fibrinous exudation threaten suppuration or the vitality of the part, incisions of from two to three inches in length must be practised, to relieve the strangulation. Various local applications are made use of by various practitioners, such as fomentations of poppy-heads, collodium, solution of sulphate of iron, &c.; but in this disease, as in rheumatism, I have found nothing better, as a lotion, than camphor mixture, with a proportion of vinegar and tincture of opium, applied warm, by means of lint, and then covered with oiled silk or French wadding. Both in rheumatism and in this disease the lotion now recommended will be found useful in relieving the local symptoms, provided proper constitutional means are employed at the same time.—*Lancet, August* 11, 1855, *p.* 119.

90.—ON ONYCHIA.

By John Hamilton, Esq., Surgeon to the Richmond Hospital, Dublin.

Sometimes, in consequence of a tight shoe, the flesh of the side of the nail of the great toe is pressed against the side and upper angle or corner of the nail. Now, Dupuytren observed very truly, that in consequence of this corner of the nail being a little overlapped by a fleshy prominence, the scissors in cutting the nail are prevented from going far enough to cut this part of the nail completely, so that the angle projects in a sharp little point, which irritates the flesh pressed against it, and finally ulcerates a way into it. This is further accomplished by the pressure from above on the arch of the nail; which being flattened and straightened, the sides are forced out. The flesh, therefore, irritated and inflamed, swells, reddens, and ulcerates, and there is a thin fœtid discharge from the corner of the nail; standing or walking is painful; and the pressure of a shoe can scarcely be borne; the whole foot, when the irritation runs high, gets swollen and red, and even the lymphatics up the leg are inflamed. This is called the onychia simplex. Sometimes only one side is affected, and if so, it is generally the outside; at other times, both sides of a nail, and in some instances, both great toes suffer from this painful disease. I am inclined to think that, besides the local cause I have mentioned, the constitution has something to say to it. I have observed so many cases in delicate strumous people and in those who labour under other diseases. I operated on a gentleman who was paralytic of the whole side of the body and of speech, who had it in both great toes. There is also a young lady who is at present, and has been for the last three years, labouring under paraplegia, with cataleptic attacks, and who has been bed-ridden for that period, and, consequently, never wore a shoe, yet for a year and a half has had onychia simplex of the right great toe nail at the outside. The onychia simplex is not a disease that gets well of itself; its progress is usually from bad to worse; the swelling of the toe becomes very great, so much so, that a case is given by Dupuytren, where from the size and redness of the toe, the patient was for a long period treated for gout—a mistake, however, scarcely credible. The more the flesh swells the greater is the pressure on the toe nail, the deeper and more extensive the ulceration, from which fungoid granulations are seen to rise.

If you see this disease early, when the upper end at the side of the nail is alone engaged, you may stop it in this way:—Let the patient lay up, and poultice the toe with bread and water; this lessens the irritation and inflammation, and you will find that you will be able to insinuate, by means of a small lachrymal probe, a minute shred of lint under the angle and side of the nail, and between it and the flesh; after it is fixed in, wet it with a solution of nitrate of silver, 3i. to the ounce; if the lint remains in, it need not be removed for forty-eight hours. You will then find the irritation and its consequences lessened, and by renewing the application two or three times the disease will be cured; and to avoid a return, you should caution the patient when cutting his nails, to cut them straight across, to be sure there is no little projecting point at the angle, but also most particularly against rounding off the angle, *which allows* the flesh to be pressed over it the

more readily. I cured in this way a large heavy man, foreman to Mr. Turner of the Iron Works, who had been previously treated by caustics, poultices, and ointments without any good.

When, however, the disease is more advanced, the pain and irritation excessive, it is better, after rest and poultice, and a purgative if required, to proceed with an operation, one of the most painful in surgery, though happily of short duration, by slitting up the nail and removing it. It is done in this way:—the blade of a strong short-bladed sharp-pointed scissors is passed under the nail, quite to the root, the nail is slit up in the centre, one side is seized at its middle angle with a strong forceps, and torn out by turning it over on itself. If both sides are diseased, then the other half of the nail is served in the same manner, a poultice is applied, and in a few days the part will be well. It is quite remarkable how soon a case of a year's standing is thus cured in so short a time.

Chloroform happily enables us to perform this painful operation without the consciousness of the operation.

Mrs. A. W., a rather delicate young lady, has suffered for eight months from onychia in both great toes, and on both sides of the nail in each. Great varieties of lotion, and several caustic applications have been tried in vain, and she cannot walk. I put her under the influence of chloroform, and slit up with a scissors the centre of each nail, and then with a strong forceps seized in turn the angle of each, twisted and drew them out entire and unbroken. She never felt the operation. A bread and water poultice. On the eleventh day she was just well, two little yellow spots in the centre of each nail alone remaining unhealed. The nails grew again in the course of a few weeks.

Sometimes the toe is bruised by a heavy body falling on the nail, blood is effused under the nail, inflammation, suppuration, and ulceration of more or less of the matrix ensue, with a loosening and separation of part of the nail from its bed. In this case the nail acts as a foreign body, and no relief is afforded until it is torn out. You have an instance of this in a boy formerly in the house, on whose toe the edge of a pail fell; also in a young woman, a patient of Mr. Adams, to whom a nearly similar cause originated the injury, a bucket having crushed her toe, and with so much subsequent inflammation, that it extended to the periosteum, matter formed between it and the bone, with death of the last phalanx, which had to be removed.

George Bagnall, æt. 15. Three weeks ago a bucket fell on his right foot, and hurt the toe very much; it bled largely at the time from under the nail: he suffered much from it; inflammation took place, it got worse and worse up to the time of admission. The nail was very loosely attached, and was removed this morning by Mr. Hamilton, without much pain, though it required a sharp, strong pull. After removal, the matrix appeared raw and ulcerated at the sides, a projecting white fibrous membrane at the root of the nail, looking at first very like new nail. A bread and water poultice. A week after the surface of the matrix looked quite healed, with a new nail beginning to grow. He was dismissed. It is a good example of one form of simple onychia, the inflammation and ulceration having been caused by the crushing and tearing of the nail. In an unhealthy constitution, it would have run into the second variety, which has been called onychia maligna, from the severity of its symptoms, not from any cancerous character it possesses: it is a disease of the matrix which secretes the nail. This diseased action may be caused by an injury which crushes or tears the root of the nail in its bed, as in Bagnall's case, or by disease originally commencing at the root of the nail, with inflammation and ulceration, and finally an alteration in the nail itself, as we might expect from its secreting structure being diseased.

The toe is very much swollen, of a deep red colour, the nail is either gone, and its whole matrix converted into a large unhealthy looking ulcer, the surface greenish or black looking, with raised white callous edges, and profuse, thin, fetid, oily, and often bloody discharge; or if there is a nail, it is quite altered, dark, thin, and even shrivelled like wet parchment, and is evidently not the cause of the state of the toe as in onychia simplex. The swelling and redness very constantly affect the foot, and I have even seen them extend some distance up the leg. Sometimes there will be a fungoid granulation springing up from the centre of the ulcerated *matrix, even from the* bone itself;—after the nail is gone and the disease is les-

sening in violence, an attempt at a new nail will be seen to be made by some white horny prominences here and there.

It is not always confined to the great toes, as I have seen it affect some of the smaller toes at the same time.

The pain is very great, and the least touch of the part gives exquisite pain; wearing a shoe is out of the question, unless the leather over the toe is cut out. There is great irritation in the system; and from that and restless nights, and want of exercise, the patient gets pale, and thin, and low-spirited. The fœtor of the discharge, in spite of every care on the part of the patient, is most offensive.

It is a disease of youth rather than age: I have seen a girl ten years old affected with it.

The treatment that Dupuytren was the first to propose, is very severe, indeed, though certainly very effectual; it was to remove the entire matrix of the nail; he made a deep incision with a sharp straight bistoury, in a semi-circular form, a little above the root of the matrix, and carried it round the sides; he raised with a forceps the edge of the integument next the matrix, and cut under it toward the end of the toe, keeping close to the bone, so as to remove the diseased matrix entirely. The part was to be examined closely, to see if there was any portion of the nail remaining, which was to be removed; it was then to be covered with a pledget of lint, with holes in it and smeared with cerate, and dry lint outside it, and not opened for five days.

In about a fortnight it had generally healed. You will sometimes have to perform this operation, but not often. Mr. Wardrop found that mercury given to salivation effected a cure; and the late Mr. Colles was in the habit of treating such cases very effectually with mercurial fumigation. You may combine these, giving three grains of blue pill three times a day, and apply mercurial fumigation daily till the sore assumes a healthy granulating surface, and the surrounding inflammation and swelling subside; the simple applications, bread and water poultice, or simple cerate dressing, may be used; sprinkling the ulcerated surface with red precipitate powder nearly answers as well as the fumigation.

The efficacy of this treatment is well illustrated by the case which has just left the house:—George Waller, ætat. 28, admitted into No. 1 Ward, April 5th, 1855; the great toe of the left foot is much swollen, of a livid red colour; the extremity bulbous, with a deep excavated ulceration, brown and sloughy on the surface, round the root and sides of the nail; the edges of the ulceration raised, sharp, indurated and very tender; the nail is shrivelled, of a dark brown colour, easily breaking; it is firmly attached to the toe, but seems undermined by ulceration; there is profuse discharge, thin, sanious, and extremely fœtid; the redness extends up the foot and to neighbouring toes, with some tumefaction. He suffers much pain, particularly at night. The disease is of three months' standing, beginning with ulceration at the corner of the nail—he thinks from too tight a shoe. A month after its first appearance, he was admitted into the prison hospital, where he remained for two months, the ulcer being repeatedly and freely cauterized and poulticed, but without any improvement.

He was ordered five grains of blue pill night and morning, the surface of the ulcer to be sprinkled with red precipitate powder, and the toe to be poulticed; under this treatment the part rapidly improved, and the surface of the sore became healthy; but as the nail appeared to keep up irritation, and to show no indications of separating, Mr. Hamilton put him under the influence of chloroform and removed the nail, which was very adherent at the root. On the 24th, three weeks after admission, he was dismissed cured.

If these mild means fail, you still have the operation. Before chloroform was resorted to, it was, perhaps, the most painful operation in surgery; the sensibility of the parts was so exalted—the least touch was so exquisitely felt, that no wonder the stoutest quailed at the idea of any operation on it with the knife. I saw the following remarkable instance of the shock of the nervous system, from the torture of the operation:—A little girl, about 12 years old, had onychia maligna from the fall of a stool on the toe. An incision was made beyond the matrix of the nail, and carried round the side; a similar one was made on the other side to meet it, so that the nail was completely isolated. The incision was then carried horizontally under the nail, *which was entirely* removed. The girl screamed loudly

during the operation, and fainted at its termination, and finally went into a fit, during which the back was arched, the arms moved about as in stretching while yawning, the eyes suffused, open, fixed, and the pupils dilated, evidently insensible to objects or to sound—insensible in fact. After being carried to bed she went from one fit into another, the pulse very rapid and small. The fits were tranquil ones. After several hours they gradually subsided, and she got well with rather more sympathetic fever than usual.—*Dublin Hospital Gazette, June* 1, 1855, *p.* 134.

91.—*On the In-Growing Toe Nail.* By G. M. Humphry, Esq.—[Mr. Humphry proposes the following as a simple and effectual remedy for this troublesome complaint:]

This is nothing more than a piece of silver, rolled out sufficiently thin to admit of being bent to the required shape, yet sufficiently firm to bear moderate pressure. This should be nearly the length of the nail, from a quarter to half-an-inch wide, and bent in somewhat of an S shape, or rather thus,

. The lower end (*b*) is, with the aid of a pair of forceps, to be carried down between the overhanging ulcerated skin and the nail, and hooked under the rough edge of the latter. The upper end (*a*) is then carried outwards, and secured in that position by a strip of plaster, and a bandage round the toe. By this means, the inverted edge of the nail and the skin are effectually kept from one another, and pressed in opposite directions. The nail is a little elevated, and the "fungous growth" very soon shrinks under the pressure of the metal, and assumes a healing aspect. Often, when the silver is well adjusted, the patient is able to walk about with comparative ease immediately afterwards. I do not interfere with it for several days, when a marked improvement is usually found to have taken place. The silver is re-adjusted with greater ease, and allowed to remain a longer time. Gradually the ulcer heals, and the nail grows up in more natural shape and appearance. It is well, however, to continue the use of the silver for some time; and, after the sore has quite healed, it is well to insert a piece of lint, or a small flat piece of silver, under the edge of the nail, to prevent the tender cicatrix being fretted by it, and to keep down the skin. The patient should be directed to avoid tight shoes, and not to cut the corner of the nail low down. In some bad cases, it has been necessary to keep the patient quiet, or in bed, for a short time; and, in a few, to prepare the way for the silver by the introduction of a piece of lint, secured by a strip of plaster. There may be nothing novel in the plan here recommended, but it certainly is not known and adopted so generally as it deserves to be. It suggested itself to me when reflecting upon the nature and causes of the complaint, and endeavouring to find some better means of treatment for this very painful and annoying malady than those I had seen employed, feeling certain that the removal of the side of the nail, or any portion of it, which is usually done, must be wrong, for the simple reason that the skin soon occupies the vacancy so caused, and is most likely to be again fretted by the nail growing up into its former place. Since I adopted the above plan, some years ago, I have found little difficulty in the treatment of these cases, have instructed some patients to carry out their own cure, and have not failed in a single instance. The size and exact shape of the piece of silver must, of course, be regulated according to the case, and a little nicety of manipulation is required to insinuate it between the ulcerating skin and the nail, and hook it under the edge of the latter, without inflicting much pain in the exquisitely tender state of the part.—*Med. Times and Gazette, July* 7, 1855, *p.* 21.

92.—*Nitric Acid and Sulphur as an Escharotic.*—Mr. Cock has recently been employing in some cases under his care in Guy's Hospital, as an escharotic, a compound of nitric acid and sulphur. A paste is made by mixing the strongest nitric acid with sublimated sulphur, until of a proper consistence. This paste is applied *to the diseased surface*, the surrounding parts having been protected by plaster, as

when chloride of zinc is used. The mixture does not run about. It appears to give less pain than the nitric acid alone, and acts longer, producing more of eschar. In one case Mr. Cock employed it to remove a prominent mass of granulations in fungous testis, and it succeeded well. A cure, however, did not result, as a subsequent attack of inflammation aggravated the condition. We understood Mr. Cock that the formula had been suggested to him by Sir Benjamin C. Brodie.—*Med. Times and Gaz., July 7*, 1855, *p.* 8.

98.—*Cutaneous Nævi Cured by the Application of Iodine Paint.* By Dr. S. Edwards, Physician-Accoucheur to the Samaritan Hospital for Women, &c.—[Two cases met with by Dr. Edwards were most satisfactorily and completely eradicated by this means.]

The first instance in which I was induced to employ it, was for a nævus unfortunately situated on the side of the neck of a female infant. At birth it appeared simply as a small red shining spot, which in three months increased to the size of a fourpenny piece. The mother of the child at this time positively refusing to have any escharotics employed, fearing that it might give rise to a permanent and greater deformity, I recommended astringent and cold applications to be applied constantly, and this was kept up for some time, but with no good result. The nævus at the end of ten months had acquired additional size, and was observed to become redder and a little more elevated, whenever the circulation was increased by crying, &c. The parents still refusing any of my former suggested remedies, or even of vaccination, "until it got worse," I recommended the use of iodine paint, which was regularly employed by gently painting over the surface with a camel's hair pencil every alternate day, occasionally leaving it off for three or four days when the skin was very irritable and rough. Under this treatment I was pleased to find that the growth of the nævus was arrested, became smaller and mottled, and finally disappeared; a speck or two being alone visible to mark its former site.

The second case was very similar; occurred in a little boy nearly two years of age. The nævus was about the size of a shilling, but slightly elevated, and situated on the abdomen, and had gradually, but very slowly, increased since birth. No treatment had been employed, the physician who attended the mother of the child, having advised nothing to be done unless it increased. The tincture was commenced in September, 1854, and was continued more or less up to last month, when the disease had disappeared, leaving scarce a trace of the mischief.

I know not whether others may have made trial of this treatment, but its success in these two cases has induced me to draw attention to it, as it is a plan so simple in its character that I can see no objection to its employment. In neither of these cases did it produce fever, or, in fact, any effect upon the general health. It is difficult, of course, to decide what might have been the result had these cases been left to themselves without treatment. I have seen several that in the course of time spontaneously disappeared; but still the fact that each of the above cases had gone on increasing up to the commencement of the treatment, and then began shortly to recede, and finally disappeared, must induce the belief that some considerable merit is due to the iodine, and that it deserves to have a more extended trial.

The many plans that have been proposed and adopted for producing inflammation in, and consequent destruction of, the nævus, are mostly attended with serious objections—*caustics*, by occasional extensive ulcerations, serious hemorrhages, and by exciting not unfrequently considerable constitutional irritation. *Vaccination* has, I believe, generally failed, and when successful has the disadvantage of leaving the ordinary cicatrix. The seton, needles, the injection of fluids, and lastly, and perhaps the best of all, the knife, have an aspect of seriousness to the parents, and are all fraught with occasional serious consequences. The latest plan which has been suggested, is that of Mr. I. B. Brown, who has produced pustules on the cutaneous nævus by means of tartar emetic ointment. Besides the almost certainty of a larger or smaller cicatrix being left, in one of his cases it occasioned very serious sloughing of the neighbouring parts; objections to its employment

about the face and neck of a very decided character.—*Med. Times and Gaz., June 2, 1855, p. 540.*

94.—*Atheromatous Tumours of the Scalp.* By JOHN ERICHSON, Esq.—[These consist essentially of a diseased sebaceous follicle, lined inside by tesselated epithelium, and combining a cheesy-looking matter; if they contain a darkish-coloured matter, it is a sign of disintegration, not unfrequently followed by ulceration, which may readily be mistaken for a malignant growth.]

The mode of removal of these tumours before ulcerating is very simple. A single incision is made across the wen or cyst, and then, with a strong drag of the forceps, a sort of evulsion is practised, the entire growth coming out like an almond from its husk or shell. They are found also under the eyelid, and are made worse by any practice but one—namely, passing a small probe through them on the conjunctival surface, and stirring up the contents with the probe dipped in nitric acid. —*Lancet, June 23, 1855, p. 624.*

95.—*Spender's Chalk Ointment in Ulcers of the Leg.*—Dr. PATTERSON has collected 125 cases of chronic non-specific ulcers of the leg, in which, under this mode of treatment, the cure has been rapid and complete. The following formula he prefers:—

℞ Cretæ preparatæ, ℔iv.; adipis suilli, ℔i.; olei olivæ, ℥iii.

Having heated the oil and lard, add gradually the chalk, finely powdered.

The ointment and a bandage being once applied, it is left until the cicatrix forms and becomes firm.—*American Med. Examiner.—Edinburgh Med. Journal, July 1855, p. 53.*

96.—*Deep-Seated Abscesses.*—The injection of deep-seated abscesses with tincture of iodine is coming into more favour in hospital practice. In two cases during the present month, in the analogous sacs of ovarian cysts, one by Dr. West, at St. Bartholomew's, and another at University College Hospital, iodine was used. In a third case of immense abscess of the loins (not lumbar abscess), Mr. Paget found the iodine injection very valuable. The rapidity with which the iodine is absorbed and spread over the system, and then eliminated by the kidneys, seems to prevent excessive local stimulation. In hydrocele iodine is almost always used, also, as the danger of too much local inflammation by the old port wine injection is thus avoided.—*Lancet, Sept. 22, 1855, p. 279.*

97.—*Phagedænic Sores: Use of Charcoal.*—The treatment of phagedænic sores is always more or less tedious. We have recently noticed two cases of this nature; one treated by Mr. Adams, very satisfactorily, with an application we have before noticed—balsam copaiba—a mild and useful stimulant. The other case was a large ulcer on the lower extremity, in a man in one of the beds at St. Bartholomew's. In addition to the ordinary plan of carrot poultice, charcoal, opium, &c., we observed a contrivance suggested by Dr. Stenhouse—a sort of cage of open wire-work, hanging from the cradle placed over the limb, and filled with pieces of well-burned charcoal. When we remember the fatal rapidity with which hospital gangrene, or erysipelas, spreads from one bad case in hospital to others, and then call to mind the undoubted value of charcoal as a deodorant, if not disinfectant, the plan of Dr. Stenhouse seems a good one. This cage or wire-work, we need only add, is not at all in the way, as it hangs under the bed-clothes. The chief objection to charcoal, in the shape of poultice, seems to be, that "dampness" destroys its power of absorbing noxious gases.—*Lancet, Oct. 13, 1855, p. 339.*

DISEASES OF THE EYE AND EAR.

98.—TREATMENT OF PURULENT OPHTHALMIA.

By JOHN F. FRANCIS, Esq., Surgeon to the Eye Infirmary, and Lecturer on Ophthalmic Surgery at Guy's Hospital.

[The system of treatment uniformly adopted in the Eye Infirmary at Guy's Hospital has been eminently successful, for in a great number of cases treated, destruction of the cornea has only taken place in one-fifth, eighty-one per cent. were saved; of course the treatment varies a little according to the stage of the attack, and the age and vigour of the patient.]

Mercury has constantly been exhibited at the outset, with the object of bringing the system quickly under its influence, but has never intentionally been pushed beyond the point of affecting the gums with tenderness. As soon as that point has been reached, a diminution of the dose and in the frequency of administration has been enjoined. Of the beneficial action—nay, the necessity of this agent within these limits, I am now well convinced, though, prior to experience, regarding it with disfavour. I believe its curative influence is exerted not so directly upon the suppurative inflammation of the conjunctiva as in restraining the submucous cellular effusion, and counteracting the tendency to aggravated mischief beneath the surface, which the sudden suppression of the morbid secretion by other means is calculated to produce. When chemosis has been inconsiderable or absent, or when ulceration has once set in, mercury has been exhibited more sparingly; for in both cases less can be gained, and in the latter more is to be feared, from its operation than in the stage of active interstitial deposition. The nitrate-of-silver solution, generally of the strength of eight grains to the ounce of water, was employed in all the cases deemed remediable. Its application was ordered every two, four, or six hours, according to the intensity of inflammation, the abundance of discharge, and the rapidity with which the pain characteristic of the disease, and stayed by the collyrium, returned. Two things deserve especial notice here—the necessity of obtaining access for the drops as far as possible, to the whole conjunctival surface, and the inexpediency of permitting them to rest long in contact with the cornea. The control exercised by a weak solution of nitrate of silver in ophthalmia neonatorum far exceeds that of the strong solution in the present graver malady. A cure is effected with certainty in the former by the collyrium of nitrate of silver, careful ablution only being demanded besides. In the latter, in order to relieve the general inflammatory excitement, to check the cellular exudation, and preserve the cornea, other active remedies in addition are indispensable; but the purulent secretion is at once restrained, and the conjunctivitis (taken *per se*) mitigated by this astringent.

In the above cases it will be seen venesection was not once resorted to, and the cupping-glass was very sparingly used; but leeches were applied repeatedly, as long as the inflammation ran high, and the preservation of sight was possible. Tyrrell's mode of scarification was also adopted whenever the chemosis was considerable and the patient would submit to it. In several of the preceding narratives this is not particularly noted; but the practice was the rule, to which the exceptions alluded to were rare. In one remarkable case, however, that of Ann B——, No. 12, arising, in all probability, from gonorrhœal contagion, both eyes being affected, and the chemosis great, the patient absolutely refused to undergo what, at the time, I regarded, and represented to her, as absolutely necessary for her recovery. She regained, notwithstanding, excellent vision, and proved that, however desirable and expedient, the operation is not, even under the most aggravated circumstances, essential to success. It is a valuable auxiliary, relieving in the most direct manner the distension of the reticular tissue, and so contributing materially to the cure; but probably few practitioners, if any, now recognise it as that antidote to the dangers of purulent ophthalmia which the lamented author seems to have considered it. Observation, indeed, shows that rapid ulcerative action, not passive sphacelus, is the common source of the cornea's destruction; and, giving every credit to Mr. Tyrrell for his important suggestion, and especially for the milder constitutional treatment he simultaneously introduced, I entertain

much doubt whether some mischief has not arisen from the too exclusive confidence in this one remedy, which his ingenious rationale and earnest recommendation of it created.

But to return: The performance of radiant scarification was in the above cases facilitated where the palpebral fissure was naturally short, by freely dividing the external commissure of the lids. Spasmodic contraction of the orbicularis palpebrarum was thus in a measure neutralized, and, besides the immediate advantage to the operator, material relief of tension was obtained. Throughout the course of the disease, almost unceasing use of warm poppy fomentation, containing one or two drachms of alum in the pint, was enjoined. By dint of continued sluicing with this fluid, the pus may be as effectually washed away as by the aid of a syringe—an instrument which is open to the double objection of possibly inflicting injury upon the patient in unskilful hands, and upon the attendant in zealous ones. The last case arose from the spirt of matter caused by a syringe inoculating the operator; and in one of the two cases immediately preceding, the sister of the ward was in all likelihood only saved from similar consequences by the circumstance of wearing spectacles, on which, happily, instead of on the conjunctiva, she received a jet of discharge in the same way. Tonics and nutritious diet were made available at an early period. On the average, their exhibition was commenced within the first week after active treatment had been instituted, the principal local indications for their use being flaccidity of the palpebræ, subsidence of the chemosis, and fading of the brilliant hue of the inflamed surfaces. Occasionally the constitutional state, as judged from the pulse and aspect, seems from the very first to demand decided support, for persons of debauched habits are the most liable to at least one variety of the complaint. These points, of course, must not be disregarded, and it is quite practicable to sustain the power of the system by a moderate amount of unstimulating aliment concurrently with treatment in some respects of an opposite character. In most cases, however, it demands the nicest discrimination to determine the precise period when tonics may beneficially be brought in; and though the guides that direct us may be designated in a general way as above, it is yet, I believe, by considerable experience and careful observation alone that in practice their delicate intimations can be correctly recognised. One good result of the plan here pursued is the avoidance in general of lingering chronic conjunctivitis. The granular palpebra was formerly a common sequela of purulent ophthalmia. I only recollect two instances in the foregoing collection in which this condition was observed subsequently to the removal of the acute symptoms; in neither did it reach any considerable degree, or impair in the least the transparency of the cornea. I believe the use of mercurials, local depletion, and local astringents from the first, and the seasonable exhibition of tonics as above exemplified, calculated to ward off this ulterior evil of purulent ophthalmia, as well as its earlier and more urgent dangers.—*Lancet, June* 9, 1855, *p.* 581.

99.—ON PURULENT OPHTHALMIA.

By James Dixon, Esq., Surgeon to the Royal London Ophthalmic Hospital.

If the treatment of purulent ophthalmia by excessive depletion be judged by its results—the only sure test—we shall, I think, be forced to confess that there was ample cause for trying some less violent means of cure. It has been suggested that the more temperate habits of the mass of the people at the present day, as compared with what existed fifty years ago, may exert a considerable influence over the inflammatory manifestations of certain diseases, and that those surgeons who describe purulent ophthalmia, as they saw it at the commencement of the present century, had really sometimes to contend with a greater fulness and force of circulation in their patients than we are in the habit of witnessing, especially among the overworked and crowded population of our great towns. Certain it is that, as far as my own experience at a large metropolitan hospital enables me to form an opinion as to the general condition of patients suffering under purulent ophthalmia, I should say that they are uniformly more or less depressed, with a pulse *more feeble than natural*, and in a state which in every way contradicts general

bleeding, and calls for the administration of tonics. There is usually a coated tongue, with a loss of appetite, and a brisk purgative is needed at the very outset of the treatment. Afterwards, either bark and ammonia, or quinine should be given, and hyoscyamus if the patient be restless. Pure air—to many the best of all tonics—must, if possible, be obtained; and all unnecessary confinement to bed, or to one room, avoided. Meat may be allowed once a day, and a moderate quantity of beer or wine; but on this head no arbitrary rule can be laid down. The surgeon's judgment must guide him as to the cases in which he ought to forbid stimulants, recommend them in moderation, or even insist upon an extra quantity being taken.

Meantime, the local treatment should be commenced at once. I always employ either a solution of alum (eight or ten grains to the ounce of distilled water), to be injected under the lids every quarter of an hour, or nitrate of silver (three or four grains to the ounce), to be applied three times a day. It is useful, after employing the nitrate of silver for a few days, to change it to the alum, or *vice versâ*. The application of the solid nitrate of silver to the whole surface of the inflamed conjunctiva is preferred by some surgeons, but I have not found it superior to the solution above mentioned; it may be used to the cornea in those cases (chiefly occurring, however, in *gonorrhœal* ophthalmia) where rapid ulceration is beginning at its margin.

The student ought constantly to bear in mind that, although the disease termed purulent ophthalmia has received its name from that symptom which most readily attracts notice—namely, the profuse conjunctival discharge, the real source of danger lies in the *cornea;* and that, even if it were possible so to drain the patient of blood as materially to lessen, or even wholly arrest, the discharge, we might still fail to save the eye. It is not the flow of pus or mucus, however abundant, that should make us anxious, but the uncertainty as to whether the vitality of the cornea be sufficient to resist the changes which threaten its transparency.

These changes are twofold—*rapid ulceration* and *sloughing*. Now, has any sound surgeon, I would ask, ever recommended excessive general bleeding and salivation as a means of averting these morbid changes from any other part of the body except the eye? And, if not, why are all the principles which guide our treatment of disease in other organs to be thrown aside as soon as it attacks the organ of vision?

Do what we may, it must sometimes happen that in the more acute cases of purulent ophthalmia, our best endeavours are in vain, and the cornea becomes irreparably damaged; still I feel convinced that, if we are unremittingly watchful to observe the changes which take place in the eye itself or in the general health of the patient, and to modify our treatment accordingly, a stimulating plan such as I have sketched will do all that our present knowledge of the disease can enable us to accomplish.—*British & Foreign Med.-Chir. Review, Oct.* 1855, *p.* 394.

100.—ON STRUMOUS OPHTHALMIA.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

The treatment of strumous ophthalmia naturally divides itself into constitutional and local, which may be dwelt upon separately, for the sake of arrangement, though at the same time it must be borne in mind that they bear an intimate relation to each other; for, whilst it must be admitted that all these cases are in some measure due to constitutional causes, the local disease often persists long after the original and exciting systemic cause has passed away. There are three principal digressions from the normal standard that I have particularly noticed as favourable for the incubation of this form of ophthalmia. The first of these I would designate the "inflammatory type." It is rapidly developed, the local symptoms are acute, there is severe pain in the eyes, attended with profuse lachrymation of a scalding character, red, swollen lids, and spasmodic closure. The constitutional symptoms exhibit a hot and dry skin, a rapid pulse, foul tongue, loss of appetite, arrest of all the natural secretions, constant restlessness. The treatment, under these circumstances, consists chiefly of *salines, antimonials*, mercurial purgatives, and the use of

the warm bath: this latter is peculiarly useful in such cases. The diet must be light, and not either stimulating or too nutritious. At the same time care is required not to persevere in this plan too long, not in fact a day longer than the state of the secretions indicates its propriety, otherwise a feeble condition is induced, and the disease continues in a subacute or chronic state. Much discrimination is needed in making out these shades of difference, and success in the treatment mainly depends upon our doing so.

The second class of cases that seem to deserve special notice may be denominated the "irritable type." In these cases the mucous membranes are congested and disordered, and their secretions increased in quantity and vitiated in quality; the tongue and lips are aphthous and swollen; the nose excoriated; the skin inflamed: combined with this there is often a tendency to prolapse of the rectum and chronic diarrhœa; this condition frequently follows one or other of the exanthemata, and may be kept up by the presence of worms. You may readily recognise this form of disease by the general outpouring from the mucous outlets. Unsuitable food and want of cleanliness are fertile sources of this deranged state of the mucous membranes.

In the treatment of these cases, all causes of irritation must be removed; if worms are suspected, one or two drastic aperients may be required. The secretions may be improved by a mild mercurial and an alkali. The diet must be carefully attended to; many of these symptoms result from crude ill-digested food, improper in quality or superabundant in quantity. The children of the poor are very much mismanaged in this respect. At the Ophthalmic Hospital, I always gave a laconic, but, as I believe, an effective formula—"stale bread-and-butter, milk-and-water, and a little meat once a day." It often happens, however, that after all these means have been carefully employed, the irritation of the mucous membrane remains, which purgatives only seem to increase. Under these circumstances, I have found the utmost possible benefit from Battley's solution, regulating the dose by the age of the patient, allowing a minim for each year, and giving it once or twice in the twenty-four hours. It seems, in these cases, to act like a charm, removing the diarrhœa, checking the other morbid secretions, improving the appetite, allaying restlessness, and subduing the most urgent and distressing symptoms —viz. the extreme photophobia. Much prejudice exists in the mind of many against the use of opium in any form in children; but extensive experience has convinced me of the great value of this remedy in suitable cases. Warm baths soothe and allay irritation. Tonics of any kind are not well borne, and seem to aggravate all the symptoms.

The third division of these cases may be termed the "asthenic type." It is found most commonly among the children of our poorer population. The chief symptoms are emaciation and pallor, with a rapid and weak pulse, cold extremities, moist tongue, frequent perspirations, and are quite compatible with, and coexist with a considerable amount of ophthalmia and extreme photophobia. It is in this group of cases that we commonly find the intermittent form of the disease. Towards evening the child will open its eyes and play about as usual; but the symptoms will recur with the same intensity the next morning. I have observed, that a tonic treatment is most valuable in these cases; they often come before our notice at the Ophthalmic Hospital. We find such patients suffering from the effect of bad ventilation and insufficient and unwholesome food; and sometimes, in addition to this, active antiphlogistic treatment may have been employed, with a view of subduing local inflammation. It is remarkable how rapid a change is produced by the adoption of every available means for developing power in the system. Where intermittence of symptoms and periodicity can be traced, quinine seems to act like a specific; the dose must be, of course, regulated by the age of the patient, but rather a large dose can be borne, and seems to be required. Where the fibre is very lax, and the limbs feel flabby, steel is useful and seems to be indicated, and the two may be sometimes combined with great advantage. The combined salt of iron and quinine is a convenient form for its exhibition. At the same time, a liberal diet, with a moderate amount of stimulus, must be given; and fresh air, and if possible, sea air, and all such means as are calculated to *develope power*.

Many medical men, judging by the severity of the local symptoms, and losing

sight of the general debility of the system, treat such cases antiphlogistically, limiting the patient to spoon diet, and acting upon the various secretions. When a case so treated presents itself suffering from all the adverse circumstances which a feeble state of system has induced, it is often remarkable to observe the rapid improvement that takes place under an entire change of management. Tonics and a liberal diet may be given altogether, regardless of the severity of the local symptoms, and of the intensity of the intolerance of light. If this plan can be fully carried out, its favourable effect is speedily observed; but our chief difficulty consists in counteracting the enfeebling influences by which such cases are surrounded, such as impure air, unwholesome and insufficient food, &c. When the strumous diathesis is very marked, the glands enlarged, the upper lip thickened, cod-liver oil may be given with advantage, either alone or combined with steel. If the tongue is foul and the secretions disordered, it is a good plan to commence the treatment with an emetic, and then to exhibit tonics. Where the secretions are very abundant, opiates may be combined with tonics very advantageously. Where this asthenic condition is complicated with much mucous and cutaneous irritation, such as I have before described, with swollen nose and lips, enlargement of the glands, acrid secretions, and a cold, pasty, flabby surface, I have observed remarkable improvement in all these symptoms from the exhibition of arsenic, in doses proportioned to the age of the patients. About two minims of the liquor arsenicalis is the dose I generally give, three times a day, immediately after meals. The effect must be carefully watched, and the medicine must not be given at any one time for a longer period than a fortnight or three weeks. The beneficial effect is often rapid and striking, and it may be given in a state of system for which no other medicine seems to be quite suited. As regards the use of mercury in these cases, I believe that in by far the greater majority it is very injurious; but instances do occur, though they are rare and difficult to detect, in which this medicine is useful. I can only indicate them as belonging to the class of strumo-syphilitic, in which some syphilitic taint is engrafted upon and combined with struma, and produces a train of symptoms in many respects resembling some forms of tertiary syphilis. I have met with cases so closely resembling the more remote effects of a primary sore, that, if it were not for the age of the patient, you might suppose it was the result of the direct influence of this poison. I am not now speaking of those cases that occur soon after birth, and are manifestly syphilitic, but rather of such as appear at ages ranging from about seven to twelve; the cornea and iris, and even the deeper textures are often involved, and the intolerance of light is very extreme. Minute doses of mercury, as for instance one or two grains of the grey powder, or one-ninetieth of a grain of the bichloride, twice or three times a day, seem to act very beneficially both upon the general health and the local symptoms. I must, however, again urge the extreme importance of correctly diagnosing this peculiar complication, otherwise more harm than good will be done by the exhibition of this medicine.

Before I leave the subject of constitutional treatment, I must not omit to mention that most efficient of all means for restoring strength in a strumous diathesis—I mean, change of air, particularly to the sea; this expedient will sometimes effect a cure when all else has failed. Not only is it useful in removing present mischief, but it often prevents a relapse, a strong tendency to which constitutes one of the most distressing features of such cases.

We may now pass on to the consideration of the local treatment of strumous ophthalmia, a point second only in importance to the constitutional, since we find a judicious combination of topical means with general treatment essential to success.

Local treatment may be arranged conveniently under the following heads: Local depletion; Counter-irritation; Local stimulation to the lids and to the eye; Local sedatives. In the earlier stages of an attack, where the symptoms are acute, the vessels full and numerous, and of a bright-red colour, or in a sudden relapse of an old-standing case, in which you can trace fresh organized deposit or a false membrane on the cornea, the abstraction of blood, by means of leeches, is often useful; they may be repeated, with advantage, once or twice, but I have usually found it useless to continue this plan for any time; all the benefit likely to accrue from it is very speedily obtained; *a prolongation* of local depletion is apt to enfeeble the

system, without any corresponding subsidence of the local disease. In less acute cases, where the vascularity is not so prominent a symptom, or where it has been diminished by local depletion, blisters are very useful; they must be frequently repeated, and, in mild cases, will effect complete relief of the most prominent symptoms. Mr. Tyrrell dwells strongly upon the advantage of this form of temporary counter-irritation in relieving intolerance of light, and seems to rely upon it almost exclusively as a local means in these cases. My own experience does not allow me fully to subscribe to this view. In the more severe cases, blisters fail; and in some forms of the disease, in which mucous and cutaneous irritation co-exist, they seem to be decidedly contra-indicated. A modification of this plan, though possibly acting in a very different way, has recently been strongly advocated. It consists in applying some powerful local stimulant to the eyelids. Some use for this purpose the solid nitrate of silver, moistened and brushed lightly over the lids; others paint the tincture of iodine on the lids. Whichever is selected, care must be taken that it does not find its way into the eye; and it usually requires to be repeated every four-and-twenty hours, for a few days, until a decided impression is made on the skin. The advocates of this plan attribute its efficacy to the direct influence of the stimulus upon the extreme branches of the fifth pair of nerves, upon an abnormal irritability of which they believe the photophobia to depend. Whether the explanation be correct or not, I have no doubt of the advantage of the plan in some cases. I have tried it very extensively, and have observed that where it is useful its effect is very rapid and complete, but that it is only in a certain limited number of cases; in many others, it has had no appreciable effect. The important and difficult point to ascertain is, some guide or indication to its applicability—whether the use of this method must be tentative and empirical, or whether we can select cases in which a favourable result may be predicated. It appears to me that this method is peculiarly applicable to those cases in which vascularity and other evidence of diseased action are slight, and photophobia exists as the prominent and principal symptom, and in which the disease is not of very long standing. I generally use the tincture of iodine in preference to the nitrate of silver, because it occasions less pain, is less liable to produce vesication, and is equally efficacious. With regard to the employment of solutions of the nitrate of silver, and other local stimuli, to the conjunctival surface, in strumous ophthalmia, I find them, in the majority of cases, decidedly injurious, and, under these circumstances, they seem very much to retard the cure, and to exert a baneful influence for some time after they have been discontinued. The presence of photophobia, however, does not alter the rules I have already laid down for your guidance, in a former lecture, with regard to the employment of such means. If the secretion is of a puro-mucous character, stimuli will be of service, but they will not subdue the disease single-handed, as in pure catarrhal ophthalmia, but must be combined with other suitable means, both constitutional and local, and if the discharge becomes aqueous in its character, the local treatment must be altered. Cases do occasionally occur, in which the symptoms are severe and protracted, and in which I have observed, both in my own practice and in that of others, great benefit from the use of the nitrate of silver, although none of the conditions above mentioned, as indicating this remedy, were present. My motive for its employment, under such circumstances, has been the exhaustion of all other available means, and rather as a *dernier ressort* than as the result of any scientific induction. Such occasional and accidental exceptions to a rule do not at present advance our knowledge of treatment, but ought in candour to be mentioned, and may ultimately lead to the elucidation of a fresh law. In those forms of strumous ophthalmia, in which irritability is a prominent symptom, in which the disease is limited to the conjunctiva, forming aphthæ and phlyctenulæ, attended with aqueous secretion of a frothy character, local sedatives are very useful. Of these, perhaps the best is the opium wine of the Pharmacopœia, dropped into the eye two or three times a day; it generally causes rather severe pain, that lasts several minutes, but is followed by a marked improvement in the symptoms. Prussic acid is highly extolled by some authorities; it may be used in the form of vapour, or as a lotion, or drops, diluted in the proportion of a drachm of prussic acid, of the Pharmacopœia strength, to an ounce of distilled water. I have certainly *observed great advantage* from its employment in several cases. Belladonna is

sometimes used as a lotion or a fomentation in the same group of cases. I can speak with more confidence of the opium wine than of any other form of sedative as a local application; it is an old but very valuable remedy that has fallen into unmerited neglect. This has probably arisen from its too indiscriminate use, and from a want of care and judgment in selecting cases suitable for its employment. —*Lancet, June* 16, 1855, *p.* 602.

101.—*Granular Conjunctiva.* By J. Dixon, Esq.—I believe that in most cases of granular lid our chief dependence must be placed in improving the patient's general health, by giving him iron and quinine, singly or in combination, regulating his diet, and, if possible, placing him in a pure and bracing air. An issue in the skin of the temple, kept open with a single pea, and occasionally stimulated, if the discharge becomes scanty, with some caustic or other irritant, is a slow, but often very serviceable adjunct. Tincture of iodine painted on the skin of the lids is often useful.

I have at various times tried all the most approved lotions and drops, but have never satisfied myself that any of them were of much benefit. The acetate of lead in fine powder, dusted over the everted lid, produces considerable pain at the time of its application, but afterwards gives decided relief, apparently by mechanically filling up the interstices of the "granulations," and so producing a smoother surface for the eyeball to move upon. As the salt slowly dissolves, it probably exerts also an astringent effect upon the vessels supplying the enlarged follicles and papillæ, and so diminishes the size of these excrescences.—*Brit. and For. Med.-Chir. Review, Oct.* 1855, *p.* 395.

102.—ON THE UTILITY OR INUTILITY OF THE CATOPTRICAL TEST IN DOUBTFUL CASES OF CATARACT.

By Dr. Hayes, of Philadelphia.

In the diagnosis of cataract, the catoptric examination of the eye affords the most unerring test.

In the early stages of lenticular cataract, the brilliancy and distinctness of the inverted image are diminished; it has no longer a sharp and well-defined margin, but its outline appears shaded off. This image gradually fades with the increase of the opacity, and long before the cataract is mature, the inverted image is obliterated. The deep erect image is also indistinct in the advanced stage, the anterior surface of the capsule giving only a general reflection.

In capsulo-lenticular cataract, the inverted image fades much earlier than in mere lenticular cataract; a very slight degree of opacity of the capsule sufficing to destroy its function of reflection.

Among the numerous cases we have seen, in which we have derived great assistance in our diagnosis from the aid of the catoptric test, we shall relate two, which will serve to show its utility, and to justify the confidence we repose in it.

In September, 1839, I was invited by my friend, Dr. G. W. Norris, to examine a mulatto man, named Peter, in the Pennsylvania Hospital, who was supposed to be affected with glaucoma. The pupils had been dilated by the application of belladonna. There was opacity in both eyes, which was denser in some parts than in others. This opacity seemed more deep-seated than is usual in cataract, and its colour was of a greenish grey. Vision was, however, quite as good, perhaps better, than might have been supposed from the degree of opacity.

On holding a lighted candle before the eyes, the three images were visible. The anterior upright image was natural in all respects. The deep-seated upright and inverted images were dull, their margins indistinct, and of an unusual reddish tint. The inverted image in one eye disappeared as the candle was moved opposite to the more nebulous portion of the lens; and when the observer looked at the eye of the patient obliquely, the second inverted image seemed to have a double po like the letter W. I did not hesitate, from these phenomena, to pronounce it to be a case of cataract.

A few days afterwards this man died suddenly, and we were afforded an opportunity of examining his eyes.

The transparency of both capsules was impaired. A narrow streak at the posterior part of one lens, extending from near the margin to the centre, was quite opaque, and on applying a needle to this portion we found it quite soft, so as to be readily removed, leaving a depression. On carefully washing both lenses, so as to remove their superficial layers, which were softened as well as partially opaque, the remaining portion of each was found perfectly transparent and of a beautiful amber colour. This colour was the same whether the lens was viewed by transmitted or reflected light.

The second case was that of a man named Christian Minster, forty years of age, admitted into Wills' Hospital, Oct. 7th, 1841. This man stated that he had recently come from the country; that he had been admitted in one of our public institutions, where he was pronounced to have cataract, and it was determined to operate upon him; but that, being unwilling to submit to this, he had eloped. In a letter which he showed from his physician in the country, his disease was said to be cataract.

The opacity behind the pupil had certainly great resemblance to that of cataract. The degree of vision he enjoyed corresponded to the degree of opacity; the independent and associate motions of the iris were tolerably active, and the patient saw best by twilight.

On applying the catoptric test, however, it was at once found to be a case of amaurosis, and not of cataract. The three images were visible, and of their natural appearance. The history of the case led me to ascribe the amaurotic affection to congestion of some portion of the nervous apparatus, and a course of treatment corresponding to this view was directed, consisting of counter-irritation to the back of the neck, purging, stimulating pediluvia, &c. Under this course he improved so rapidly, that in a week he could read with one eye a diamond-print Bible. He subsequently had a relapse; but by the application of cups to the head, pustulation with tartar-emetic on the back of the neck, and afterwards ptyalism, he was completely restored. He was discharged cured in January following.—*Ibid*, *p.* 402.

103.—ON THE OPHTHALMOSCOPE.

By T. Wharton Jones, Esq., F.R.S., Ophthalmic Surgeon to University College Hospital.

[This instrument is very valuable to show the appearance of the retina when in a congested state, or when otherwise affected.]

For all practical purposes, opacity of the lens can be sufficiently well ascertained by ordinary exploration with the pupil dilated. By means of the ophthalmoscope, adjusted for the purpose, however, otherwise undistinguishable opaque points can be seen. But it is of no advantage to push the diagnosis of opacity of the lens to such a minute degree of accuracy, seeing that we often meet with cataractous opacity, quite evident to ordinary examination, notwithstanding which there is still pretty good sight; whilst, on the other hand, cases occur in which the impairment of sight complained of is not at all to be accounted for by the appreciable opacity of the lens.

Whilst the morbid states of the anterior segment of the eyeball are sufficiently accessible to objective exploration, those of the posterior segment, comprising the vitreous body, retina, and choroid, could formerly, with some exceptions—(*e. g.* exuded matter in the vitreous body, scrofulous and encephaloid growths at the bottom of the eye, &c., which give rise to a yellow shining appearance, sometimes traversed by blood-vessels)—be determined only from the attendant subjective phenomena. This defect in our means of diagnosis of the state of the posterior segment of the eyeball was, however, practically little felt. Having determined that the disease was not seated in the anterior segment, and thus, *per exclusionem*, and from the nature of the subjective symptoms (together with the objective symptoms presented by the anterior segment, and by the eye considered as a whole), referred it to some part of the posterior segment, we were in a position to conduct our treatment of the case, not with less efficacy at least than can be done now, when it is

possible, in many instances, to discover, by means of the ophthalmoscope, opaque spots, shreds, &c., in the vitreous humour, and congestion, with extravasations, exudations, and pigment deposits in or behind the retina.

Morbid states discoverable in the vitreous body, are opacities in the form of fixed spots, or of undulating membranous shreds and filaments, of the most different size and form, with sharp or indistinct outline.

There is nothing more easy than to see the vessels of the retina in a cat's eye without an ophthalmoscope. Having previously dilated the pupil by atropia solution, drop some water into the eye while the eyelids are held apart, and cover the cornea with a thin plate of glass. The vessels of the retina can then be seen, slightly magnified. It has been proposed to explore the bottom of the human eye in a similar manner, and instruments have been contrived for the purpose, but the ophthalmoscope . . . . . is of more ready and convenient application.

In man, the red colour which the bottom of the eye presents varies in tint; being brighter in fair, more of a yellowish-brown in dark, individuals. The retinal vessels are seen branching on the uniform red field formed by the more vascular choroid. At the entrance of the optic nerve, which appears whitish-yellow and well defined, the retinal vessels are seen emerging. The retina in the situation of the yellow spot is little or not at all vascular, and sometimes presents a greenish-grey aspect. A streak of pigment deposit may be seen at some part or all round the border of the optic papilla.

The principal morbid appearances in the retina which have been observed, are congestions, spots of extravasated blood, pigment deposits, opacities of various aspect, the retina itself bulged forward by fluid accumulated between it and the choroid, and tremulous in the dissolved vitreous body.—*Ibid*, *p.* 389.

104.—DIRECTIONS AND CAUTIONS RESPECTING THE USE OF THE OPHTHALMOSCOPE.

By James Dixon, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[The form of instrument now generally employed is that of a single concave mirror, of four inches focus, perforated in the centre, and fixed in a handle.]

The examination is made in a darkened room in the following manner:

The patient sits sideways at the edge of a table on which a lamp is placed, the flame being close to, and on a level with, the suspected eye, but far enough back to prevent any light falling directly on the cornea: or he may sit with his back to the table, the lamp being close behind him, so that the rays of light just clear the top of his head, and fall perpendicularly, instead of obliquely, on the surface of the mirror.

A chimney faintly tinged with blue, by decomposing the red rays, whitens the light, and imparts to the tissues of the eye a more natural appearance.

Unless the pupil have become dilated by disease, it must be fully brought under the influence of atropine before the examination is begun.

The surgeon sitting close to and facing the patient, holds the mirror at such a distance in front of the eye to be examined, that the rays of the lamp may be brought to a focus on the patient's retina. As this cannot instantly be found by a beginner, it is better for him to direct the rays at first upon the patient's lower lid, and as soon as a well-defined inverted image of the flame has been formed there, a slight upward and forward movement of the mirror will bring the retina itself within the exact focus of the instrument.

If it is desired to magnify the parts observed on the surface of the retina, or to increase their illumination, the surgeon, holding the ophthalmoscope steady in one hand, must take in the other a convex lens of about two and a half inches focus, and place it at a suitable distance in front of the patient's cornea.

So much has lately been written about the value of the ophthalmoscope as a means of detecting incipient disease of the retina, that the student must be warned against the irreparable mischief he may inflict upon an eye, in which vision is only slightly impaired, by subjecting it to an intense glare of concentrated light.

His first trial should be made on one of the lower animals,—a kitten, for

example; and when he has acquired readiness in using the instrument, he may next proceed to examine patients who have long been hopelessly blind, but in whom the media of the eye remain transparent.

One very important fact should never be lost sight of by those who employ the ophthalmoscope—namely, that the mere concentration of powerful light on the retina, if continued for more than a few seconds, does of itself place the part in an unnatural condition. In exploring the internal ear, by means of artificial light, we may, indeed, concentrate the rays upon the tympanic cavity, or its membrane, to any amount, without injury to the parts illuminated; but the retina, so far from being a merely passive object of examination, is just the one tissue in the body which appreciates the intensity of the rays which fall upon it; and it must be borne in mind, that an eye may be irritable and intolerant of light to an extreme degree, even although there may be a considerable diminution in its power of perceiving objects.

Incipient amaurosis is a term in itself so vague, and often so indiscriminately employed to designate a slight failure of sight from assumed loss of function in the retina, that I would most earnestly impress upon the student the danger of too hastily subjecting persons complaining of slight defects of vision to the searching glare of the ophthalmoscope. First, let the cornea be most rigidly examined, to ascertain whether some loss of transparency may not exist in the axis of vision. Then, after the pupil has been dilated, let the lens undergo a similar scrutiny; and until the observer has thoroughly satisfied himself that both these structures are transparent, let him not subject the retina to the possibly irritating effects of concentrated light.

The chief value of the ophthalmoscope seems to consist in enabling the surgeon to set aside, as positively hopeless, a large number of cases formerly termed *amaurotic* or *nervous*, which were assumed to be still curable, because their real nature could not be demonstrated.

We now know that total disintegration of the vitreous body, detachment of the retina from its connexion with the choroid, and other equally hopeless conditions of structures essential to vision, may exist, without any alterations being produced in the outward appearance of the eye. In enabling us, therefore, to appreciate these conditions, the ophthalmoscope has proved of immense value; but the more delicate changes occurring in the early stages of deep-seated disease, whilst they elude detection by this instrument, are almost certain to be aggravated by its application.

We frequently meet with patients who have gradually lost sight in one eye or in both, and yet have neither suffered pain nor observed any unnatural appearances—such as spots, sparks, or flashes—on their field of vision. There is nothing faulty in the structure or functions of the iris; in fact, the eye presents every appearance of perfect health; and yet even the brightest light fails to make any impression on the retina.

Such cases have been commonly classed as *amaurosis;* the absence of inflammatory action in the superficial tissues of the globe making the surgeon discard all thought of the choroid being the seat of the mischief. Yet the ophthalmoscope may at once reveal extensive changes both in the choroid and retina. These two structures may be widely separated from each other by effused fluid. The retina may be partially or wholly overspread with opaque, whitish deposit, or extravasated blood. The papilla of the optic nerve may be atrophied, so as to be barely traceable; the branches of the central artery or vein being fewer in number and diminished in size.

In short, the whole fundus of the vitreous chamber may afford evidences of extensive disorganization, while the iris and superficial textures appear perfectly healthy. . . . .

It must needs be a difficult task to suggest any rational plan for treating a disease which, in many instances, begins by inducing mere dimness of sight, without any other noticeable symptom, either local or general. Chronic inflammation of the choroid, with effusion of fluid between it and the retina, sudden extravasation of blood in the same situation, and other changes, equally serious in their nature, are, as I have just stated, revealed by the ophthalmoscope in patients *who have not been aware* of any impairment of health, and who have suffered

little, if any, local pain in the affected eye. In such cases the surgeon is commonly consulted after all the mischief is done, and when treatment can be of no avail. He will at least abstain from attempting violent measures, such as extensive bleeding and the action of mercury, which, while they are powerless to renew a disorganized structure, may seriously impair the general health ot the patient.

The invention of the ophthalmoscope has been hailed as the beginning of a new era in the study of eye-diseases, and as a means of clearing up all the obscurity which has hitherto surrounded the pathology of the choroid and retina; and doubtless the discovery of extensive organic changes in the eyes which had never exhibited any of the ordinary signs of inflammation, has shaken old-established opinions as to the frequency of *functional amaurosis;* that is to say, loss of visual power in the retina without traceable change in its structure.

Nevertheless, there are many limits to the powers of the ophthalmoscope.

1. It can afford us a clear view of the retina only when the lens is transparent; and we know how commonly this body becomes opaque where disease has for a long time existed in the deeper tissues.

2. Unless the pupil be of good size, or dilatable by means of atropine, only a very small extent of the retina can be brought into view; and chronic iritis—so frequent an accompaniment of changes in the choroid and retina—never exists without giving rise to such adhesions between the iris and capsule of the lens as must limit both the size and dilatability of the pupil.

3. Although various alterations in the retina—loosening of its attachment to the choroid, thickening, extravasation of blood, &c.—are so readily seen by the aid of the instrument, the earlier stages of disease (which alone are curable) produce changes so slight and delicate as to elude observation.

A marked increase of redness in the colour of the retina sometimes takes place after it has been exposed for only a short time to the rays of the lamp; and the observer, who is not aware of this, may very likely attribute to a settled morbid state of the eye what is in truth only the temporary result of his own examination.

When the rays reflected from the mirror are first allowed to fall upon the fundus of the eye, a generally diffused, reddish glare is usually perceived; but as soon as the proper focus has been attained—which is known by ramifying blood-vessels coming clearly into view—this red colour changes into an orange-red, an orange-yellow, or, in some cases, even a buff tint. The surface of the retina is now exposed, and as this is not quite a transparent tissue, but only translucent, it appears like a delicate whitish film, overspreading the red network of closely-packed choroidal vessels. The latter are not recognisable as separate trunks, but they produce the effect of an indistinctly mottled layer behind the retina.

If the patient turns the eye inwards, the papilla of the optic nerve comes into view—a circular patch of white, faintly tinged with pink. From the centre of the papilla emerge the central artery and vein of the retina; the more frequent arrangement being that an artery and vein pass upwards, and a similar pair downwards; both sets of vessels then dividing into several branches, which run towards the periphery of the retina.

There are certain forms of blindness which, from their partial extent or transient duration, we cannot suppose to arise from any such alterations in the retina as could be appreciated by the ophthalmoscope; and a search with that instrument, in these cases, would not only be fruitless, but, unless prosecuted with great care, would almost certainly produce mischievous results.

One of the most important results of the ophthalmoscope will probably be a great restriction in the administration of mercury. Patients who, for many months, have lost the perception of objects—perhaps even of light itself—will no longer be encouraged to submit to a lengthened mercurial course by the vague assurance that, "as their case is one of amaurosis, a full course of mercury may give them a chance." A view of the fundus of an eye overspread with *old* coagula; of a retina detached from the choroid by effusion of serum, and undulating with each movement of the globe; of an atrophied optic papilla; of a vitreous humour filled with opaque filaments and corpuscles; these, and other palpable signs of disorganization, will force the most devoted believer in the omnipotence of mercury to dethrone his idol.

The ophthalmoscope now shows us that morbid changes in the vitreous humour are by no means so uncommon as had been supposed. It is, however, far from easy to determine the precise nature of those changes; for not only is it difficult to bring into the proper focus the variously-shaped bodies, which appear as flakes, rounded granules, filaments, &c., but this difficulty is greatly increased by the rapidity with which some of the bodies are whisked about in the vitreous humour by each involuntary movement of the patient's eye. They are probably, for the most part, coagula of effused blood, mixed in some cases with granules of pigment, or the products of inflammation. Some of the larger, more membranous flakes suggest the notion of their being portions of broken-up hyaloid tissue.

[Two slight inaccuracies occur in Mr. Dixon's directions for the use of the ophthalmoscope.]

He says the patient "may sit with his back to the table, the lamp being close behind him, so that the rays of light just clear the top of his head, and fall perpendicularly, instead of obliquely, on the surface of the mirror." If the mirror were held perpendicularly to the rays, their focus, formed by its reflection, would not enter the patient's eye, but would return towards the luminous object. The mirror must always be placed more or less obliquely in reference to the lamp, if the focus is to fall on the patient's eye.

He says further, that "A chimney faintly tinged with blue, by decomposing the red rays, whitens the light." The blue glass does not decompose the red rays. In the light of a lamp, the red and yellow rays are in excess, so that objects seen by it appear differently from what they do in daylight, which contains a large proportion of blue rays. The blue glass chimney, by adding blue rays, will improve the light of the lamp, by making it approach to the white colour of daylight.—Dr. W. Mackenzie, Glasgow.—*Ibid*, *p.* 391.

105.—*Browning of the Conjunctiva from Nitrate of Silver.*—When solutions of nitrate of silver are long employed as eye-drops, it is not unusual for the conjunctiva to assume a brown or olive hue. The staining is permanent unless removed by remedies. Mr. Critchett ordered, in a case of this kind which presented itself at the Moorfields Ophthalmic Hospital a few weeks ago, a solution of iodide of potassium (gr. viij. ad ℥j.) to be freely used. He stated that he had seen this lotion diminish the stain, but had never known it effect a complete removal. Cases in which nitrate of silver drops are used should always be carefully watched, in order at once to desist, should this change of colour be caused. The sulcus of junction of the ocular and palpebral conjunctiva is the part where the staining commences, and if the surgeon be particular to inspect this frequently, he will run no risk.—*Med. Times and Gaz.*, *July* 21, 1855, *p.* 63.

106.—PRACTICAL REMARKS ON STRABISMUS.

By G. Carpenter, Esq., Surgeon to the Royal London Ophthalmic Hospital.

Much has been said about the importance of determining which is the defective eye in any given case, and rules have been laid down for ascertaining this point. The truth is, that in almost every case both eyes are equally implicated in the abnormal position; for although one may be habitually inverted and the other straight, yet if the strabismic eye be brought into play, it assumes a normal condition, and moves in obedience to the will, and the other eye, if suddenly uncovered, will be found precisely in the position that the diseased eye usually assumes; and I have proved over and over again that as favourable a result is obtained by operating upon one as the other. The fact is, that in strabismus the two eyes start from different points; both respond to the effort of the will, and each is found, when examined separately, to move equally well in every direction. The disease is therefore rather relative than positive. Practically I endeavour to find out which is the eye that is habitually inverted, and for this purpose I test *the relative* power of vision in the two eyes, and I select for operation the one

presenting this peculiarity. But in the alternating form of this disease it is quite immaterial which is done, and in any case the result would be the same as regards the removal of the deformity; but the defective eye is selected in the hope of benefiting its vision simultaneously with its position.

The first point that impresses itself upon the mind of an extensive and careful observer is, the extreme variety of causes to which the disease is attributed; but when these are analyzed and grouped, they may be arranged under three heads:—first, where the origin of the nerves is affected through the brain and spinal cord, as in cases following convulsions, fevers, &c.; secondly, where irritation is propagated from extremities of nerves, as in cases following injuries, ophthalmias, &c.; thirdly, from morbid volition, as in cases resulting from imitation, from temporary excitement, &c. In investigating the causes of strabismus, we find a very close analogy between this disease and talipes. Another circumstance, equally conspicuous and more embarrassing, is the numberless shades of difference in the degree of departure from the normal position, whether it be inversion, or, more rarely, eversion, or, still more rarely, undue elevation or depression. In extreme cases, we find that when one eye occupies a central position the other is so far drawn into the corner that about half the cornea is concealed by the folds of the caruncle; in slight cases, the departure from the central axis is from half a line to a line, and between these two extremes there is every shade of difference. The same may be said respecting diverging strabismus; but the third variety—viz. that in which either the superior or inferior rectus is involved, is never found in an extreme degree. Again, we find that the condition of the sight is very different in cases that are in other respects apparently simple. The rule certainly is, that in cases of habitual strabismus of some years' standing, the function of the organ is impaired; but I have met with several well-marked cases in which sight has remained perfectly good, and with others in which the degree of impairment of vision has varied considerably, some being able to read large print, others being scarcely able to distinguish features, or even large objects. In the alternating form, vision is almost invariably found to be equally good in both eyes; and these varieties exist without any obvious change in the appearance of the eye, either as regards the condition of the pupil or of any of the transparent media, such as may generally be observed in amaurotic cases. It is quite possible that the ophthalmoscope would reveal changes in the retina and choroid in some of these cases, but I have not as yet had opportunities of observing a sufficient number to speak with any certainty. It has been said that the power of the external rectus, and consequently of eversion, varies considerably, as evinced by the extent to which the eye can be acted upon by this muscle; and this may be true in some cases, but it must be received with much caution, particularly where the strabismus is extreme, because the limit of eversion of the one eye depends upon the other having reached its utmost extent as regards inversion, and consequently the voluntary effort as excited in both eyes has reached its extreme boundary.

In considering the question of treatment, I propose to limit my remarks exclusively to operative proceedings, never having been able to trace any advantage from any other plan, after the deformity has existed any time. The operation that has usually been practised for the removal of this deformity has consisted in the free division of those parts attached to the inner surface of the globe, including conjunctiva, sub-conjunctival fascia, rectus muscle, and its sheath; in fact it was recommended by one author, that the inner surface of the sclerotic should be cleaned: if we bear in mind that this operation has been performed upon some thousands of cases, of all ages, and presenting the numerous varieties to which I have already alluded, the wonder is, that a greater number of failures have not occurred, and that a uniform procedure should have been found so extensively applicable to a condition presenting so many degrees of deformity; nevertheless, this is to a certain extent true. When the eye is free from the muscle it seems, in many cases, to have an inherent and selective power of assuming the straight position. So that what seems improbable in theory exists in fact. At the same time, untoward results sometimes follow the operation, either immediately or at a subsequent period, rendering the condition of the patient worse than before. As, therefore, the motives for recommending such an operation are mainly based upon considerations respecting personal appearance, (the improvement to sight being secondary

and uncertain,) it becomes a matter of great practical moment to consider what are the defects of this operation, and how far they admit of correction. The first point that strikes every close observer, even in the most favourable specimens of the operation, where the eye has assumed a perfectly normal position, and moves freely, is a certain sinking in and loss of the caruncle, so that the inner part of the globe seems more exposed than that of the opposite eye, and a fossa exists in the place of the caruncle; this, so far as my experience goes, is an invariable result of the operation, and explains the circumstance that has been often remarked, that those cases are most successful in which it has been necessary to operate on both eyes, the double defect being less conspicuous than when one only has been divided, and is brought into competition with the natural state of the parts. Another unfavourable result that sometimes occurs, is increased prominence of the globe; this takes place usually immediately the muscle is divided, but I have known it occur at a subsequent period, and gradually increase for a time. This, no doubt, arises from the loss of balance of power between the recti and obliqui, the latter acting with undue power when one of the recti is divided; the difficulty is to explain why this occurs in some cases and not in others, and to indicate any sign by which such a result may be predicated; and this I shall endeavour to do in a subsequent part of the paper. The most serious and damaging effect of the operation is the occurrence of eversion: this may be an immediate or a very remote sequence of the operation; and when the previous inversion has been slight, and there has been increased prominence, and an extensive reaction in the outward direction, the deformity is very great, and almost hideous: the face seems robbed of all expression—"there is no speculation in those eyes." To the patient it becomes a serious grievance; and, to the operator, a kind of haunting spectral vision. I have met with cases in my own practice, and in that of others, in which the two cornea have occupied the outer angles of the lids, particularly if the eyes have been operated upon at the same time.

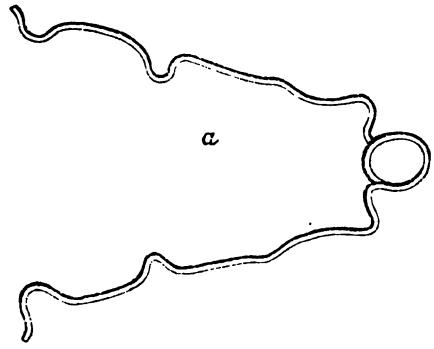
There are some other minor objections to which I may briefly allude. The extensive wound in the conjunctiva heals very slowly, remains red and swollen for a considerable time, often gives rise to a fleshy growth that requires removal, and leaves a scar more or less distinct, and the power of moving the eye in the direction of the divided muscle is often quite lost, constituting in itself some deformity. In stating the case, therefore, for the old operation, there is invariably a sinking and loss of the caruncle, and a scar, usually a considerable loss of power of inversion, not unfrequently increased prominence of the globe, and occasionally eversion more or less complete, either immediately or as a remote effect, and there may be both prominence and eversion co-existent. Now, considering that the operation is undertaken and submitted to almost exclusively with the object of removing a deformity, it becomes a question whether this deformity is removed to a sufficient extent, and in a sufficient number of cases, to justify the proceeding, and whether one decided case of eversion does not outweigh a large number of what are usually deemed successful. Whatever may be the opinion of the profession on this point, I think it must be admitted that, with such defects, a wide margin is left for improvement; and that if a procedure can be suggested, in which no sinking in of the inner caruncle occurs, nor any perceptible scar remains, in which increased prominence and eversion, as far as my experience has yet gone, never takes place, and in which the healing process is complete in a week, and is never attended with the formation of a granulation, I think all must admit that a very important point is gained. Such a plan I have recently been in the habit of adopting, and it is chiefly with the view of setting forth the details of this operation that I have been induced to bring the subject before the notice of the profession.

The essential principle of the operation I am about to describe consists in the division of the muscle sub-conjunctivally. This, it will be remarked, is not altogether a novel suggestion; it has been recommended by Mons. Guerin, and has been attempted with more or less success by several; but it has been found difficult and sometimes impracticable, in consequence of the method adopted. Thus it is suggested to draw the eye forcibly outwards, so as to render the internal rectus tense; then to introduce a small bistoury beneath the muscle, and divide it.

I who has attempted this operation in this way will agree with me that it is

one of extreme difficulty; the loose capsule round the muscle prevents the edge of the knife from acting upon the tendon, neither can the tendon be made sufficiently tense to be thus divided. The difficulty and uncertainty of this operation has resulted in its having been rarely attempted, more rarely accomplished, and never repeated.

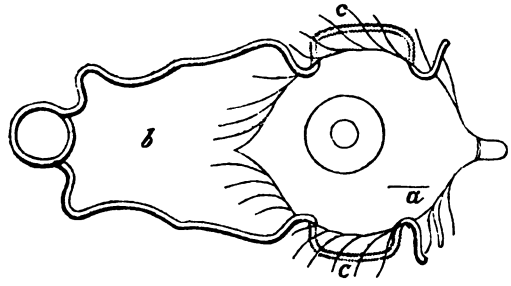
Fig. 1.



a. Speculum.

The method that I propose, and that has been performed by myself and some of my colleagues at the Ophthalmic Hospital in a large number of cases, is the following:—Having placed the patient, if nervous or restless, or very young, under the influence of chloroform, the eyelids must be fixed open with a spring speculum (Fig. 1, *a*); the globe may now be everted by an assistant, and the operator, seizing the conjunctiva

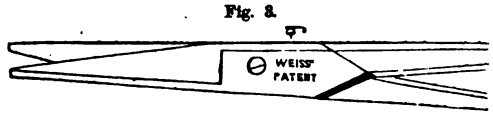
Fig. 2.



b c, Speculum in action, the dotted lines representing it under the lids.
d. Situation and size of incision in conjunctiva.

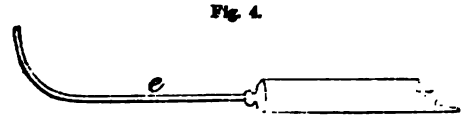
at a point corresponding to the lower border of the internal rectus, makes a small opening with a pair of rather strong blunt-pointed scissors (Fig. 3, *g*); he then seizes the sub-conjunctival fascia, and divides it to the same extent, so as clearly and cleanly to expose a small surface of sclerotic. The ordinary strabismus blunt hook (Fig. 4, *e*) bent at a right angle, must now be swept round the globe, so as to pass beneath the muscle; this may be known by the peculiar elastic resistance that is felt; the blades of the scissors must then be passed in through the opening, and by a succession of small cuts the tendon may be readily divided between the hook and the insertion into the sclerotic, and close to the latter. (Fig. 5, *f*.) You may distinctly feel and sometimes hear the creak of the scissors as the tendon

Fig. 3.



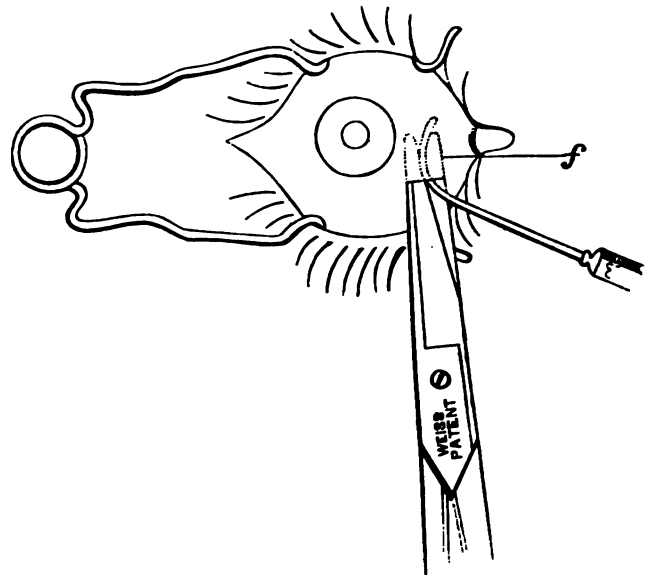
g. Strabismus scissors.

Fig. 4.



e. Strabismus hook.

Fig. 5.



f. Hook and scissors in action under conjunctiva.

is cut through. Some little difficulty is sometimes experienced, when the insertion of the tendon is rather broad, in reaching its upper edge, and when that is the case I make a small counter-opening in the conjunctiva corresponding to the upper border of the muscle. I introduce the hook from above, and, having passed it beneath the remaining slip of tendon, divide it with the scissors in the same direction. This counter-opening has the advantage of facilitating the escape of blood that has become infiltrated beneath the conjunctiva, and it does not in any way interfere with the principle and aim of the operation, which is to leave a broad band of conjunctiva between the cornea and the inner caruncle intact. The advantages of this plan, as contrasted with the old one, seem to me to be very great. It has, in the first place, the merit enjoyed by all sub-cutaneous sections, of immunity from inflammation and suppuration, and makes a very rapid and certain cure; no granulation ever forms, and the caruncle maintains its natural position, and does not shrink away into a deep fossa, as is invariably the case when the usual operation has been performed; and as far as my experience yet goes, proptosis or increased prominence of the eye is more rare, eversion never occurs, and the natural movements of the eye are more complete. This I attribute to the fact that the ocular fascia is but little interfered with, and that a good firm union takes place between the divided muscle and the globe of the eye.

Such seem to me to be the advantages of the mode of operating that I am now anxious to explain and recommend—advantages that are of so important a nature, that in fairly stating the case to the patient, if the old operation is contemplated, it certainly admits of doubt if the personal appearance is much improved, even in the most favourable results, and there is always a risk of increased prominence *and of eversion*, and it admits of a question whether it can be recommended. If,

on the other hand, the mode of proceeding I am now setting forth be in contemplation, we may at least feel assured, that if the deformity is not altogether removed, it will not be rendered worse, and that in many cases the result will be so perfect that the most experienced eye will not detect any defect, or be aware that any operation has been performed. But it may be asked if there are any objections to this operation, and any cases in which the old operation is preferable. It must be admitted that it is rather more difficult to perform, that there is a greater liability to leave some portion undivided, and that sometimes some inversion remains, in consequence of the attachment of the muscle to the fascia after it is divided from the sclerotic. This will often rectify itself afterwards, and where this is not the case it is better either to operate on the other eye, or, if the cast is slight, be content to leave the case in that state, rather than risk eversion by further interference. It is only in cases of long standing, and where the strabismus is very extreme, and where the eye is small and deep-set, and where the sub-conjunctival operation produces but very little effect, that the old operation is justifiable.

Before I conclude this paper, I would just briefly glance at two or three points of some practical interest, having reference to the age of the patients, and condition of the eye, at which the operation should be performed, and to the effect of the operation upon vision.

As regards the first point, my own experience, derived from many hundred cases, is, that the most favourable results occur in young adults, as contrasted with children. Cases in which the relative position of the eyes is not uniform, and is aggravated and altered by mental or bodily excitement, and in which there is any oscillatory or rotatory movements, are all uncertain in their results, and very liable to be followed by undue prominence of the globe, or by eversion, or both. On this account, I do not find operations on children succeed so well as on young adults. As regards the effect of the extent of the distortion in influencing the result of the operation, it is difficult to lay down rules. As far as my own experience goes, I should say, that in most extreme cases of inversion there is only a partial improvement from dividing one muscle, and it is a nice point to determine if there be sufficient distortion remaining to make it safe to divide the inner rectus of the other eye, without risking eversion. Unless the eye occupy a position at least midway between the inner caruncle and the central axis, it is not safe to operate. The chief causes of eversion, after the operation, are to be traced to the previous slight degree of the inversion, to the unsettled state of the disease, or to an undue division and separation of parts; and if the slightest eversion occur at the time of the operation, there seems to be a constant tendency to increase, until it has reached its extreme limits. This arises from the disadvantage at which union takes place, the power of the external rectus muscle, and the loss of the rectifying and controlling power of vision. Eversion sometimes occurs weeks and months after the operation, in consequence of the gradual stretching of the uniting medium, an analogue of which is to be found sometimes after fracture of the patella, in which very extensive separation of the two portions occurs. The very worst cases of eversion that I have ever seen have resulted from a simultaneous division of the muscles of both eyes, a proceeding that is in no case justifiable. The effect of the operation upon vision is surrounded with obscurity and difficulty. In the first place, much variety exists in the extent to which vision is impaired by strabismus; in the alternating form, both eyes are equally good; in children but little damage is done; but where the deformity has existed several years, there is almost invariably imperfect vision, differing, however, in degree in nearly every case.

In several remarkable cases that have come under my notice in my own practice, in that of Mr. Dixon, and others, a very sudden and complete restoration of sight has followed the operation. I should hesitate to assert this curious and almost inexplicable phenomenon, had I not verified the fact over and over again in a manner that admits of no doubt. Mr. Holthouse has endeavoured to explain this by supposing that the muscles of the eyeball focus the eye, and that the operation restores this power. If this were the true solution of the riddle, we should find something like uniformity of result, but this is not the case; the improvement is sometimes gradual, and sometimes no perceptible change occurs. These considerations suggest the performance of the operation during childhood, and if the

result could be made equally favourable in other respects, this would be the most desirable period for its performance, and the sub-conjunctival operation will render the usual objections to an operation at this period of life less obvious.

It will be seen that the chief object of my paper has been to describe and set forth the advantages of the sub-conjunctival operation; and it may be thought by some to have the disadvantage of difficulty and uncertainty, without sufficient counteracting advantages, particularly as it is alluded to very briefly and somewhat disparagingly by the more recent writers on this subject—Mr. M'Kenzie, Mr. H. Walton, and Mr. Holthouse. After having tried it in above a hundred cases, I never now adopt the old method, and I am strongly impressed with the uniformity of the favourable result; in no cases have I had increased prominence or eversion. In some cases, it is true, some amount of inversion has remained, but this occurred at least as frequently with the old operation; so that the patient is now sure of improvement from the operation, without risking the occurrence of any of the unfavourable concomitants of the old plan.

As I have mentioned in the foregoing remarks, cases of eversion, following the operation of dividing the internal rectus muscle, sometimes come before our notice. As this is a very distressing deformity,—far worse, in fact, than that for which the operation was originally performed, patients are very anxious to have something done for its removal. I have now operated on five of these cases with so satisfactory a result that I think it may be interesting to the profession if I describe the mode of proceeding that I adopted.

I may premise that the operation I am about to describe is somewhat difficult and tedious, and should be performed under chloroform, and much of its success depends upon careful attention to minute details. Having freely exposed the globe by means of the wire speculum, the parts covering the inner part of the globe, including conjunctiva, sub-conjunctival fascia, old cicatrix and muscle, with condensed tissue around it, must be all carefully dissected off the sclerotic, commencing about two lines from the inner margin of the cornea, and extending upwards and downwards and then inwards, so as to expose the inner third of the surface of the globe. This dissection must be carefully made so as to preserve the flap thus raised entire; it can most readily be done with a pair of scissors. When this stage of the operation is completed, the external rectus muscle must be divided. It is better to defer this part of the operation until now, because the action of the external rectus is useful in keeping the globe well fixed outwards during the first stage of operation. The next part of the operation is the most difficult and the most important. It consists in passing the sutures. For this purpose small semicircular needles must be used, armed with a piece of fine silk; the flap that has been raised from the eyeball must be firmly held with a pair of forceps, and drawn forward so as to make it tense; the needle must then be passed through it, as low down—that is, as near the inner corner—as possible. Two or three sutures may be passed in this way, at intervals of about two lines. The corresponding part of each suture must then be passed through that small portion of conjunctiva which has been left attached to the sclerotic near the cornea. This constitutes another difficulty, because the membrane is here so thin that the fine silk is apt to cut through: this I found a serious difficulty, in my first operation, and one that materially interfered with the success. In order to obviate this, I adopt now the following expedients:—I first separate this portion upwards towards the cornea; the needle must then be passed through it, and then back again, so as to include a portion, which must be tied tightly, so as to prevent it from tearing out. The next point is to cut away all that portion of the lower flap that can be spared beyond the part where the suture has entered, merely leaving a sufficient margin to hold it. The silks may be now drawn tightly, and tied to the end that is already fixed near the cornea. The immediate effect of this proceeding ought to be to procure some inversion, if the various steps of the operation are properly performed. The hope and intention are to get the parts to unite to the globe in their new position, and thus retain the eye. This, however, is only partially the case; there is always some tendency partially to relapse, and in two cases I had to repeat the operation, with ultimate success. The sutures may be allowed to remain *until they* ulcerate through; the subsequent inflammation is usually slight. The *amount of mobility* in the eye is very limited, but so long as it occupies a central

position this circumstance is not found practically to occasion much deformity, and is an immense improvement on the facial discord resulting from extreme eversion.

My friend and colleague, Mr. Bowman, has performed this operation at the Ophthalmic Hospital, with his usual neatness and dexterity, and the effect was very perfect. My own experience would lead me now to undertake such a case with confidence in the result, if the patient would persevere; if sufficient effect is not obtained by the first operation, a second is almost sure to succeed. I may mention that one favourable effect of the operation is the drawing forward and restoring the inner caruncle to its natural place, the deformity being much increased by the sinking in of this part.—*Lancet, May* 12 *and* 19, 1855, *pp.* 479, 507.

107.—ON THE TREATMENT OF OTORRHŒA.

By Joseph Toynbee, Esq., F.R.S., Aural Surgeon to St. Mary's Hospital.

"Otorrhœa," a term which I have endeavoured to abolish on account of its great ambiguity, has its most frequent origin in five different diseases of the ear, viz.:—

1. Catarrh of the dermoid meatus.
2. Polypi.
3. Catarrh of the dermoid layer of the membrana tympani.
4. Ulceration of the fibrous layers of the membrana tympani.
5. Catarrhal inflammation of the tympanic mucous membrane, with perforation of the membrana tympani.

Now, I need scarcely say, that the insertion of cotton wool into the meatus, in any of the four first-named diseases, is likely at once to aggravate the symptoms by pressing against the delicate parts which are the seat of inflammation. In fact, any of these four affections may be produced by the irritation following the presence of a foreign body in the meatus. A patient at the present time under my care, who had been suffering for some time from chronic catarrh of the dermoid layer of the right membrana tympani, had acute inflammation induced, accompanied by severe cerebral symptoms, by the introduction of cotton wool down to the outer surface of the membrana tympani. The most active anti-inflammatory treatment was requisite to put a stop to the irritation. In the course of a few days, the surface of the dermis, which had become of a bright-red colour, and was covered with granulations, assumed the appearance usual in this disease.

The use of cotton wool in any of the three first-named diseases is still more irrational when, as is often the case, they are sympathetic, and merely the result of irritation in the deeper cavities of the ear. Thus, very frequently, chronic inflammation of the mucous membrane lining the tympanum, accompanied by chronic disease of the bone, produces catarrh of the dermis lining the external meatus, the membrana tympani remaining entire, the discharge being purely sympathetic. A case of this kind, ending in death, recently occurred, under Dr. Sibson's care, at St. Mary's Hospital. I have already published a case, in which death rapidly occurred from the internal inflammation produced by mechanically irritating the meatus under such circumstances; and I have no hesitation in saying, that the introduction of any foreign substance into the meatus, in similar cases, is likely to be productive of the most serious results. Very frequently catarrhal inflammation of the dermoid meatus is a symptom of obstruction in the Eustachian tubes, and it ceases immediately that the tubes are made pervious. Such cases are, however, called cases of "otorrhœa," and the ears are filled with cotton wool.

But if the introduction of cotton wool into the external meatus is an irrational and unsafe proceeding in cases where the discharge originates in one of the four above-named diseases in the external meatus, its use becomes quite unjustifiable when there is a perforation in the membrana tympani, and the discharge originates in catarrh of the mucous membrane of the tympanum. After careful study of the subject for some years, and after examining a very large number of diseased specimens, the conclusion to which I have arrived is, that *the cause of death in cases of catarrh of the mucous membrane of the tympanum and mastoid cells is the reten-*

result could be made equally favourable in other respects, this would be the most desirable period for its performance, and the sub-conjunctival operation will render the usual objections to an operation at this period of life less obvious.

It will be seen that the chief object of my paper has been to describe and set forth the advantages of the sub-conjunctival operation; and it may be thought by some to have the disadvantage of difficulty and uncertainty, without sufficient counteracting advantages, particularly as it is alluded to very briefly and somewhat disparagingly by the more recent writers on this subject—Mr. M'Kenzie, Mr. H. Walton, and Mr. Holthouse. After having tried it in above a hundred cases, I never now adopt the old method, and I am strongly impressed with the uniformity of the favourable result; in no cases have I had increased prominence or eversion. In some cases, it is true, some amount of inversion has remained, but this occurred at least as frequently with the old operation; so that the patient is now sure of improvement from the operation, without risking the occurrence of any of the unfavourable concomitants of the old plan.

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5. Catarrhal inflammation of the tympanic mucous membrane, with perforation of the membrana tympani.

Now, I need scarcely say, that the insertion of cotton wool into the meatus, in any of the four first-named diseases, is likely at once to aggravate the symptoms by pressing against the delicate parts which are the seat of inflammation. In fact, any of these four affections may be produced by the irritation following the presence of a foreign body in the meatus. A patient at the present time under my care, who had been suffering for some time from chronic catarrh of the dermoid layer of the right membrana tympani, had acute inflammation induced, accompanied by severe cerebral symptoms, by the introduction of cotton wool down to the outer surface of the membrana tympani. The most active anti-inflammatory treatment was requisite to put a stop to the irritation. In the course of a few days, the surface of the dermis, which had become of a bright-red colour, and was covered with granulations, assumed the appearance usual in this disease.

The use of cotton wool in any of the three first-named diseases is still more irrational when, as is often the case, they are sympathetic, and merely the result of irritation in the deeper cavities of the ear. Thus, very frequently, chronic inflammation of the mucous membrane lining the tympanum, accompanied by chronic disease of the bone, produces catarrh of the dermis lining the external meatus, the membrana tympani remaining entire, the discharge being purely sympathetic. A case of this kind, ending in death, recently occurred, under Dr. Sibson's care, at St. Mary's Hospital. I have already published a case, in which death rapidly occurred from the internal inflammation produced by mechanically irritating the meatus under such circumstances; and I have no hesitation in saying, that the introduction of any foreign substance into the meatus, in similar cases, is likely to be productive of the most serious results. Very frequently catarrhal inflammation of the dermoid meatus is a symptom of obstruction in the Eustachian tubes, and it ceases immediately that the tubes are made pervious. Such cases are, however, called cases of "otorrhœa," and the ears are filled with cotton wool.

But if the introduction of cotton wool into the external meatus is an irrational and unsafe proceeding in cases where the discharge originates in one of the four above-named diseases in the external meatus, its use becomes quite unjustifiable when there is a perforation in the membrana tympani, and the discharge originates in catarrh of the mucous membrane of the tympanum. After careful study of the subject for some years, and after examining a very large number of diseased specimens, the conclusion to which I have arrived is, that *the cause of death in cases of catarrh of the mucous membrane of the tympanum and mastoid cells is the reten-*

tion of the discharge; so long as there is a free outlet for the discharge, the mucous membrane does not ulcerate, and the petrous bone does not become carious. I have placed upon record a large number of cases corroborative of this important fact, and its accuracy is daily becoming more manifest, yet, in face of it, a system of treatment is recommended, which has the effect of shutting up the discharge in the tympanic cavity; for what other effect can the presence of a portion of cotton wool in the meatus produce? Even in the use of so delicate a membrane as the artificial membrana tympani, where there is much discharge from the mucous membrane of the tympanum, I insist upon the removal of the whole of the discharge, by means of a syringe, twice or thrice daily.

In conclusion, it must be palpable to every medical practitioner that the only rational way to treat the diseases attended with discharge from the ear is in the first place to ascertain their cause and nature. Sometimes the affection is purely local, and the use of a slightly astringent lotion, of a solution of nitrate of silver, or the removal of a polypus, rapidly puts a stop to the affection. Other cases have a constitutional cause, and it is impossible to arrest the discharge, nor is it wise to attempt to do so, until the constitutional tendency has been successfully combated. —*Lancet, June* 9, 1855, *p.* 583.

108.—*On a New Method of Treatment for Otorrhœa.* By JAMES YEARSLEY, Esq., Surgeon to the Metropolitan Ear Infirmary.—[The usual methods of treating otorrhœa by astringent injections containing alum, salts of lead, zinc, &c., although sometimes successful in suppressing the discharge, yet often, in an exact ratio with the subsidence of the discharge, there has been a corresponding diminution of the sense of hearing. The advantage derivable from the employment of cotton wool in these cases is not limited to the mere arrest and cure of the discharge, but in many cases the sense of hearing has been immensely improved. In applying this remedy—]

First of all, the passage of the ear is to be carefully cleansed by gently syringing it with warm water, and the moisture removed by means of a porte-sponge. The parts are now to be so clearly displayed by the aid of a powerful gas reflector, that the necessary manipulations may be readily and accurately accomplished, when I take a small piece of dry cotton—the size of which varies according to the circumstances of the case—and adjust it by gently pressing down every part of it upon the surface from which the discharge proceeds, exactly as if dressing an ulcer on any other surface of the body; this done, quiet is enjoined, restricting, as much as possible, every movement of the jaw, such, for instance, as takes place in eating and speaking. Twenty-four hours afterwards I remove this, and apply another dressing of the cotton. The importance of restricting the patient from moving the jaws will be at once manifest, if the reader will take the trouble to place the point of a finger in the passage of the ear, and read aloud the present paragraph. It will then be perceived how easily the cotton, however accurately adjusted, may be loosened and moved from its state of exact apposition. In eating, this detachment takes place still more readily, yet the patient cannot be debarred all use of the jaw, seeing he must have food; nor, if great care be taken to keep the jaws in a state of motionless apposition, need speech be altogether interdicted; but for the same reason the food should be such as to require no mastication. Doubtless no one will consider these restrictions as objections to this mode of treatment; though a more specious, but equally invalid objection to it may be raised, on the ground that the tympanum being a cavity, such a degree of accuracy in adapting the cotton to its surface, as described, cannot be attained. If the ear be examined with the admirable appliances for its illumination now at the command of the aural surgeon, it will be found, in cases where the membrana tympani is destroyed, that the extent of the surface from which the discharge proceeds, is not only exposed to view, but the cavity is observed to be obliterated, and the walls of the tympanum, red and vascular, are seen thickened and tumid, if not spongy or fungoid. I speak here more especially of the worst cases that come under the notice of aural surgeons, in the great majority of which not only is the discharge itself cured, but the patient experiences a great amelioration in *the state of his hearing* also. Nay, more: cases can be referred to, in which the

great disorganization of the ear seemed to preclude all hope of effecting any amelioration of the hearing, yet in which, after persevering in the treatment for a greater or less period, a change has been accomplished, which could not have been confined to the fungoid tissue alone, for, in the cases I speak of, a sensible improvement of hearing has been a coetaneous result.

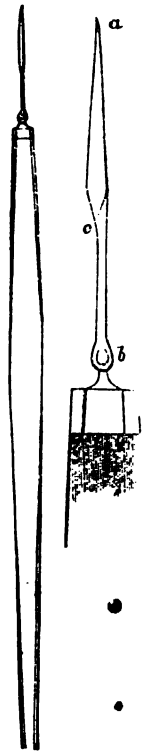
The successful treatment of external otorrhœa by the same simple means has been hitherto no less rapid than certain. Moreover, in nearly every case, relief of the deafness has accompanied the cessation of the discharge—a result the reverse of that which follows, almost invariably, the treatment of external otorrhœa by astringent injections. The arrest of the discharge may, indeed, by such means, be accomplished in many instances without any great difficulty; but when that has been effected, we have no great reason to rejoice at a cure that has been produced at the expense of the patient's hearing.—*Lancet*, *May* 5, 1855, *p.* 451.

109.—KNIFE-NEEDLE FOR THE OPERATION FOR CATARACT BY SOLUTION OR ABSORPTION.

By Dr. Isaac Hays, Philadelphia.

The operation for the removal of cataract by solution or absorption, has been deemed, by many surgeons, entirely inapplicable to hard cataracts, mainly in consequence of the difficulty of dividing such a lens by the needle ordinarily used for the purpose. The common straight needle cannot be made to cut well, beyond a short distance from the point, without being so thin as to endanger its breaking; and it is not possible to *cut* with a curved one. I have entertained the belief for several years, as is well known to my friends who are interested in the subject, that a needle better adapted for the purpose might be made something after the fashion of an iris knife, and more than three years since, I had such a one constructed by Mr. Schmidt. This instrument was described and figured in my last edition of Mr. Lawrence's treatise, p. 726.

Fig. 1. Fig. 2.



The instrument not having been made of the exact form I desired, though *described* as having a *very acute* point, is not so represented in the cut. Not being satisfied with the instruments made for me in Philadelphia, I sent a model to Messrs. Phillip and Wicker, surgical instrument makers in London, with directions as to the improvement I desired in its form, and an order to make me some of them. The instruments which they sent to me were made with the point sufficiently acute, but the back was straight to the point, and the cutting edge was too long, the makers having followed the model of the ordinary iris knife too closely.

A model was afterwards sent to M. Luer, of Paris, with an order for some of his make. These, on their arrival, I found not sufficiently slender, and the point was not sufficiently acute.

I have since had them made of different shapes, and finally Mr. Kolbe, of this city, formerly a workman of M. Luer, in Paris, has succeeded, under my directions, in making me one which has given me entire satisfaction, and is represented of its natural size in the accompanying cut, Fig. 1.

This instrument, from the point to the bead near the handle (*a* to *b*, see Fig. 2), is six-tenths of an inch, its cutting edge (*a* to *c*) is nearly four-tenths of an inch. The back is straight to near the point, where it is truncated, so as to make the point stronger, but at the same time leaving it very acute; and the edge of this truncated portion of the back is made to cut. The remainder of the back is simply rounded off. The cutting edge is perfectly straight, and is made to cut up to the part where the instrument becomes round, *c*. This portion requires to be carefully constructed, so that as the instrument enters the eye it shall fill up the incision, and

thus prevent the escape of the aqueous humour. In the diagram (Fig. 2) the proportions of the blade are not very accurately represented, the rounded part being rather too slender, and the handle should be octagonal, with equal sides, and of the same thickness its whole length.

We have now used the knife-needle in a sufficient number of cases to be convinced of its superiority over any of the ordinary cataract needles; and of the different forms of the former which we have tried, the one represented in the accompanying drawing is, we are satisfied, the best; and we confidently recommend it as such to ophthalmic surgeons.—*American Journal of Med. Science, July*, 1855, *p.* 81.

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

110.—ON TURNING THE CHILD IN CASES OF DEFORMED PELVIS.

By David Morris, Esq., Colchester.

[In certain cases of partial deformity at the brim of the pelvis, so that the child cannot be delivered by the natural efforts, Professor Simpson prefers turning the child, instead of using the long forceps, or opening the head.]

I am happy to be able fully to corroborate the safety and propriety of this method, *having adopted it in a large number of cases, and in every case with perfect success.* I am unable to state the exact number of cases, having taken no special notes of such cases, believing, as I did for a long time, that I was following a practice usually adopted by the profession at large, and not one which, as it now appears, has been confined at least to a few, as Professor Simpson assumes it as his own discovery, and recommends it as such to the profession.

I cannot have met with so few as 100 cases of this sort in the course of my practice, having registered about 3600 cases of delivery altogether, before I was obliged to retire from ill-health in the year 1852. I do not, however, claim any originality in the adoption of this practice, having been taught it by the late excellent Dr. Thatcher, of Edinburgh, while attending his obstetric course at Edinburgh during the session of 1819-20. And, in referring to a volume of notes still in my possession, taken by me at the time of those lectures, I find the practice referred to recommended as a part of his ordinary teaching upon the subject; and I believe, indeed I *know*, the same practice has been uniformly adopted by other pupils of Dr. Thatcher, and also by other practitioners. I say not this in detraction of Professor Simpson, who deserves well of the whole Medical Profession; but truth, and justice to a venerated preceptor, will not permit me to say less, and I should have very imperfectly conceived the character of the Professor were I to suppose that he will be sorry to find the method he so strongly recommends corroborated by the facts I am enabled to lay before the profession concerning it. That his ingenuity and common-sense principles have led him to conceive and adopt it, and that hence, in this limited sense of the term, he is entitled to the discovery, I have no reason to question. All I mean to tell him and the profession is, the fact, that it was known and adopted before the Medical Profession received the benefit of his genius and labours; it may be, for aught I know, before even I was taught my profession by Dr. Thatcher, who for many years had lectured and practised Midwifery in Edinburgh, before my time, and had very likely, in every course previously, taught the same doctrine, and been the means of widely diffusing the practice.

With regard to this practice of turning, I may observe that not only in cases of partial deformity, but also in every case where nature did not seem adequate to complete the labour, either from the size of the child's head, its firm ossification, or from the feebleness of the uterine efforts, I have uniformly turned the child, and completed the labour, as a footling case, with perfect success, having never once used the long forceps (an instrument I was always taught to eschew), and having but once in my whole life opened a child's head, and that was in a case not strictly speaking one of my own, but a case in which my advice and assistance were sought by a neighbouring practitioner. The poor woman had been delivered before, some seven or eight times, instrumentally, and, in a subsequent pregnancy, premature labour was brought on, but she did not recover. From my experience

and observation, therefore, I hesitate not to affirm that opening the head, and the consequent destruction of the child, is very seldom required, if the profession generally will adopt the practice now recommended. It is true that this is by no means at all times easy practice for those who have not acquired some degree of dexterity in the performance of the operation, especially for such as are not adapted by nature for it; but when the right hand is so large that it reminds one more of a shoulder of mutton than a human hand, a defect, of course, no man can be accountable for, but a defect in an obstetric operator, that ought to lead its possessor to hesitate, especially without chloroform, to attempt turning in the case of a contracted female pelvis. The mention of chloroform reminds me to say, that in all such cases, and, indeed, in all instrumental cases of midwifery, I have felt it my duty for years to administer this anæsthetic, and have not only seem no harm in any case from it, but much benefit in enabling the poor sufferer to bear with stillness the necessary assistance afforded, and so to aid the operator in the performance of his duty. I have not, however, carried my partiality for chloroform further than to instrumental cases and turning; but in all such cases I would strongly urge its adoption as of essential use, and, if used judiciously, and with a handkerchief, as recommended by its discoverer, Professor Simpson, I do not believe it will ever cause any anxiety to the medical man.—*Med. Times and Gazette, Aug.* 18, 1855, *p.* 169.

111.—*Case of Delivery by the Forceps of a Living Child, after the Head had been opened in three Previous Labours.* By Dr. William Strange, Worcester.—[The following case may be useful to the younger members of the profession, as showing the care and caution which should be used before resorting to an operation which involves the certain destruction of the child.]

Mrs. R——, a diminutive but otherwise healthy woman, much deformed from the contraction of the pelvis, the result of rickety disease in youth, was married late in life. At her first confinement, the practitioner in attendance found it necessary to deliver by craniotomy, owing to the projection of the promontory of the sacrum so far towards the symphysis pubis as to preclude the possibility of delivery either by turning or the forceps. He warned her to apply early in the seventh month of her next pregnancy, which, however, she neglected to do. At her second confinement she came under my hands, and, finding the same state of things as above described, and upon hearing the history of the previous delivery, I had recourse to the same means, and with the same result. At her third confinement, having again neglected to apply for assistance early, she came under the treatment of my friend Mr. Mathias, at Bridgenorth, who called me to his assistance. She was then about eight months gone. The forceps were used with great perseverance, until it was evident that no possibility of delivery remained, except by lessening the head. This was done with the same result as before—viz. a good recovery on the part of the mother.

In March, 1854, my assistance was again requested by Mr. Mathias to deliver this woman, who had still persisted in letting the favourable period pass by, under the idea that she should, at some time or other, bear a living child at the full time. The woman so earnestly begged that the life of this child might be spared, even though her own should be sacrificed, that we were induced to bestow more than usual care in endeavouring to ascertain if it were possible to drag it through the contracted part of the pelvis. On making a very minute examination of the brim of the pelvis, it appeared to be divided into two horns, separated in the middle by the projecting promontory of the sacrum, and neither of them anything like large enough to admit the passage of the child. Although not two inches in transverse diameter, these horns appeared to run backwards, beyond the reach of the fingers, to a greater depth than they had done in her previous labours, and it was the forlorn hope that the bones of the head might possibly be accommodated to the shape of one of them, that led me to attempt to deliver by the forceps. After much difficulty, and repeated failures, a very thin-bladed pair of forceps, of medium length, were fixed, and after two hours of continued pulling by each of us separately, and by both together, by means of a handkerchief tied to the handles of the forceps, *the fœtus was* extracted alive. The head, however, was flattened to such

a degree, that it appeared wonderful how the cerebral vessels had escaped rupture. The soft parts of the temples, also, were cut through, and very much contused. The child lived, however, and both it and the mother did well.

Such was the difficulty experienced in extracting the child, that I ought to mention, for our justification, that had it not been for the heroic fortitude of the woman, who unceasingly prayed us to continue, at all hazards, we should soon have abandoned this very dangerous traction (which continually brought down the bladder before the child) for the far safer mode of delivery by opening the head. —*Lancet, August 25th*, 1855, *p.* 166.

112.—CASE OF HEMORRHAGE AFTER DELIVERY.

By Dr. Francis H. Ramsbotham, Obstetric Physician to the London Hospital.

[This lady, who was in labour of her seventh child, had had profuse and dangerous hemorrhage in all her previous confinements, excepting the last. This was brought about by giving a dose of ergot just before the birth of the head, and repeating it as soon as the child was born. The same treatment was followed in the present instance, and the uterus contracted strongly. The placenta was found firmly adherent throughout one third of its extent, and was rather troublesome, but the uterus contracted extremely well after it was removed, and there was no more loss of blood then. Knowing her disposition to flooding, Mr. Brown, of Brixton Hill, was with me in case it should occur now.]

We both watched her closely for more than an hour; during the whole of this time, the uterus remained perfectly firm, and there was no more discharge than is common. We then left together, considering her quite safe. In about an hour after they summoned him back in great alarm, as she had become "faint and blue." He found there had been considerable hemorrhage since we had left, and that she had fainted. He immediately dispatched the carriage for me. I, however, did not reach my own house till past seven, and it wanted only fifteen minutes to eight when I arrived at my patient's. I was told that she had flooded a good deal externally, that she had been cold and pulseless, and that the means which had been tried to stay the hemorrhage, had been of no avail. She had rallied somewhat, but was still exceedingly blanched, and looked distressed; the uterus was much larger than when I had left her; there was a continued draining going on, and every four or five minutes a violent after-pain. I immediately introduced my hand, for the purpose of taking away the coagula which the uterus evidently contained. I had some difficulty in passing it into the cavity, from the resistance I met with in the mouth and neck, which had closed like a very firm ring. However, I removed from it nearly half-a-pound of compressed, fibrinous coagulum, and from the vagina almost as much, which was loose and soft. She had no more of those violent pains from that time; the drainage ceased; she lost her anxious look; the pulse gradually became firmer, and the faintness disappeared. She was placed comfortably in bed about ten, and I soon after took my departure; she has progressed to her usual good state of health without a check, and is nursing her infant satisfactorily.

Although this is a case of a rather unusual kind, still its features are well worth studying; since such a one might be the cause of much embarrassment. It is laid down as a rule,—true enough in general,—that the more powerfully the uterus contracts after delivery, the less danger is there of flooding; but this only applies to cases where the cavity is empty.

If a portion of the placenta, or a fold of the fœtal membranes, is retained, or it should contain a polypus, or be the subject of any other morbid growth, or a quantity of coagulated blood be held prisoner in its cavity, so that it cannot constringe its vessels; although it may contract more strongly than usual, and with great suffering, to get rid of the offending mass, bleeding may still go on to the extent of endangering the patient's life. The more powerfully indeed the uterus acts under the circumstances now considered, the less chance will there be of its expelling the coagulum that it contains; for, by closing around it, the uterine walls squeeze the more fluid parts away, the more solid and tougher particles only remaining; and

the fibrinous mass thus left, becoming glued to the internal surface, with a tenacity almost equal to that of an adherent placenta, no efforts that the uterus can make will dislodge it, and it requires manual interference for its separation. But the withdrawal of the coagula by the hand, at once puts a stop to the agonizing pains, and the further loss of blood. I know no case, indeed, in which instantaneous ease and immediate safety follow more directly on the performance of any operation whatever. Nor is it probable that the hand will require to be introduced a second time; for, as the uterus has a disposition to contract, it will exert that power efficiently as soon as the obstructing cause is taken away, and by so doing will seal the bleeding vessels.

There is another point of interest in the case just related, viz. the great hemorrhagic tendency that has hitherto existed in this lady's system after labour. She has flooded, indeed, dangerously, after the birth of every child except one; and in that case she took ergot just before the infant was expelled. This is by no means an uncommon peculiarity in some females; and no plan of treatment that I have tried to prevent a recurrence in those subject to it has answered so well in my hands as the exhibition of the ergot just before the birth.

I would beg to refer those who feel an interest in this paper to some cases which I published, fourteen in number, of this description, in the 'Medical Times and Gazette' for March 26, and April 9, 1853. Case 9 there reported occurred to the same lady as the one I have just related.—*Med. Times and Gaz., Oct.* 6, 1855, *p.* 341.

113.—ON UTERINE HEMORRHAGE FROM THE CAVITY OF THE UTERUS.

By Dr. A. K. Gardner, A.M., New York.

The treatment of these cases is of two characters, viz. the immediate hemorrhage; and secondly, for the cure of the causes of the hemorrhage.

When called early to a case of threatened miscarriage, when the hemorrhage is slight, and the symptoms indicate its local character, from ulceration or fissure of the os, a speculum examination should be immediately instituted, and the parts, if found in this condition, cauterized by nitras argenti, thus temporarily arresting the hemorrhage, and the uterine plethora allayed by general bleeding, and the excitement quieted by an anodyne. Should this treatment be effectual, the disease of the os should be subsequently treated by local applications, until the parts are restored to their normal condition.

If, however, the hemorrhage was not the primary symptom, or if the abortion was threatened in consequence of some fatigue, great exertion, or excitement, where there may be a debilitated condition of the uterus, which, in its relaxed state, opens the os, or in some way diminishes the circulation, and impairs its vital functions, I have found great benefit from the tonic effects produced by small doses of secale cornutum; the slight contraction consequent upon its action, closing the bleeding orifices, and frequently entirely arresting all further discharge and difficulty. This point I have already fully stated, with cases illustrative, in an article entitled, 'An Essay on Ergot, with New Views of its Therapeutic Action;' published in the 'New York Journal of Medicine' for September, 1853.

The bleeding, in the cases I have mentioned, will rarely, if ever, be so great as to endanger life. If, however, in a case where the origin of the flow is doubtful, it amount to any considerable quantity, the result will be to dilate the os, so that the finger may determine whether there be placenta prævia. If we would temporize, by resorting to perfect rest, external and internal applications of ice, alum internally,—a large piece passed into the vagina, and placed near the os uteri. These means will sometimes arrest the flow, to be repeated again at some future time. If, however, the patient be at the full time, or the miscarriage cannot be prevented, the next duty is to rupture the membranes, either through the presenting placenta by a small puncture, or, what is preferable, when the placenta but partially covers the os, through the membranes at one side. Ergot should then be given in sufficient quantities to keep up a continued contraction of the uterus, and *to thus force the* presenting portion of the child firmly down upon the bleeding

surface, and thus to dam up the flowing stream. In this manner the head forms a natural tampon. If this be not successful, manual interference must be had recourse to, and the hand passed through or by the side of the placenta, and the child turned and delivered as speedily as may be. In some cases the vaginal tampon may be found advantageous, but rarely in this form of trouble, when the child be *à terme!* and in general it will be found but a temporizing method of doubtful utility.

When, by any accident, we have a detached placenta, the case is a grave and startling one, calling for great decision and promptness of action. It resembles rupture of the uterus, in many of its symptoms, and is often extremely hard to diagnosticate. The fluttering pulse, anxiety of countenance, restlessness, retrocession of the presenting portion, exist, as in rupture. In general, however, the pear shape of the uterus is retained. Fortunately, the duty of the accoucheur is alike in each case. Immediate delivery is imperative. From the prostration from the loss of blood, there is no rigidity of the os to interfere with the introduction of the hand, and the immediate delivery by turning may be effected, if the head has so far retreated as to prevent the delivery by the forceps. I have seen but a few cases of this form of difficulty, and speak, therefore, from a limited experience. There seems, however, to be no other feasible manner of operating when these appalling accidents occur.

Having spoken of *hemorrhage* before delivery, I come now to describe that *occurring after the birth of the child.* This I divide into two classes, the first ending with the delivery of the placenta, and the second embracing the floodings after the placenta has been expelled. In these two classes are embraced the hemorrhages most commonly found in practice.

There are a small number of females who are peculiarly liable to flooding, and who always commence to flood as soon as the child is born. There seems to be with them some peculiar nervous distribution to the uterus, which prevents this organ from immediately responding to its new condition. The pains have been powerful and effectual, for a longer or a shorter time, till the child has been expelled. Up to this period there seems to be no want of contractibility in the organ, and as the head advances, and the child is expelled from the cavity of the womb, the womb contracts upon it, and is gradually diminished in size. How is the case usually conducted in practice? As soon as the head is expelled, the anxious attendant begins to fear that every moment the hemorrhage will commence, and impetuously seizes upon the expelled portion and pulls away for dear life, although without much regard for the life of the child, from the danger of rupturing the ligaments of the cervical vertebræ and the spinal cord. In great haste, therefore, the child is extracted, and sure enough, the hemorrhage commences just as was expected, and the physician congratulates himself that the child is out of the way. But the placenta is still there, and this he also forcibly delivers. Still the hemorrhage continues, and the case soon becomes one of great peril to the mother, anxiety to the physician, and horror to the surrounding friends.

The cause of all this, is the bad practice of the attending physician, in very many cases.

The labour went on well enough as long as it was left to itself. Then why not continue? "Meddlesome midwifery" does not mean solely in applying forceps, using the vectis and Smellie's scissors. On the contrary, there is more "meddlesome midwifery" in the practice of many gentlemen who never touch an instrument. It is especially illustrated in the case just narrated, not solely from imagination; for such practice I have myself seen and heard of.

The uterine contraction and diminution in volume, as I have before stated, goes on regularly so long as the child advances towards birth, and as the head passes through the superior, middle, and inferior straits. While it rests upon the perineum, and even when entirely expelled, we have no flooding. How then shall we proceed to continue this desirable state of things? And this is the great point to be especially noted in the treatment of these cases. IMITATE NATURE *as she has already manifested herself*, or rather, LET NATURE ALONE. Instead of frantically seizing hold of the head and pulling like a madman, sit down quietly and wait for nature to finish a work she is abundantly able to perform, and which she has so far ably and effectually accomplished. From some idiosyncracy the uterus is unable

to effect a *speedy* contraction, and time is necessary. Let it take its own time, and yours likewise. Patiently wait, not only till nature has expelled the shoulders, but the hips also, and do not think of lending a finger's strength towards completing the delivery, so long as any portion of the child remains within the uterus. Every one knows that it has been long recommended to introduce the hand into the uterus to arrest flooding, by the stimulus of its presence. Does not the body or legs of the child do this work as effectually as the hand of the accoucheur?

In this method I have treated very many cases. One lady, several times confined in England, and once by the late Dr. J. Kearny Rodgers, I delivered soon after the regretted decease of that gentleman. In every confinement she had bled profusely. At this labour everything was prepared for a similar scene of doubt and danger. I administered a half ounce of the tinct. of ergot as soon as the head pressed upon the perineum. It was soon expelled. I then repeated the dose, and in from ten to fifteen minutes the uterus itself, by repeated contractions, expelled the child in safety, and not a gill of blood was lost.

Dr. Isaac E. Taylor related a case to me in which he was called in consultation, very similar to this, where in several previous labours the hemorrhage had been profuse. He arrested the attending physician in his desire to deliver the child immediately, and suffered *forty minutes* to elapse after the head was delivered before the whole child was taken away from the mother. The child was purple in colour from the influx of blood into the head and from a temporary asphyxia, but subsequently did well, while the mother had no flooding of any account,—the perineum only showing a slight flow, not amounting to a hemorrhage.

Sometimes, however, the energetic, spasmodic action of the uterus does not permit the delay, giving no time for the uterus to contract firmly upon itself. In the case of the wife of a member of the Academy, who flooded after every labour to a really frightful extent, the uterus violently contracted until the child was completely expelled, and then relapsed into a state of inertia, accompanied by most profuse hemorrhage.

It is the duty, therefore, in all cases, to do as little as possible to assist the delivery in this last stage, and particularly when subsequent flooding is to be expected.

In *cases of abortion*, when the means already proposed in such cases do not arrest the abortive action, if the flow of blood be great, it is advisable to give large and repeated doses of the secale cornutum, in order not only to stimulate the uterus to a more speedy discharge of its contents, but also to press the fœtal head, or presenting portion, strongly against the opening os uteri, and thus to act as an internal plug. Should, however, the flow be excessive, in addition to this treatment it may be advisable to tampon the vagina. This may the more appropriately be done early in the flow, when the firm and slightly dilated os uteri evinces that some time must elapse before the contents can be expelled. In these cases it may frequently be well to pass a piece of alum into the vagina before using the tampon, to assist in the coagulation.

It should be remembered that the bleeding in these cases is especially efficient in relaxing the cervix, often a tedious and painful process, and that the hemorrhage to be particularly dreaded, arises in an after period from the retained placenta, of which I shall speak in its proper connexion.

I, not unfrequently, as the head passes the vulva, and particularly when there is any fear of flooding, give a half ounce of the tinct. secale cornutum, as a precaution against flooding, and not as an adjuvant to the labour. The alcohol acts as a general stimulant, and the ergot tends to ensure a permanent contraction of the uterus.

When the child is delivered, then, not unfrequently, a flow commences from the placenta, which is more or less detached from the uterus. The first aim is to secure uterine contractions. It is worse than useless to deliver the placenta, if this is not effected; for if this is done, instead of a few sinuses left open and bleeding, there remain those of the whole placental surface, and the flow is thereby very much increased.

The uterine action should be excited by the administration of ergot in full doses; (I have not unfrequently given ʒ vj. of the tincture in the course of an hour, and from which no injurious effect can be expected;) by firmly grasping the uterus

through the parietes of the abdomen; abdominal frictions; ice to the abdomen, alternated with cloths wrung out of hot water; the cold and hot douche alternated: these, one or all, will soon produce a temporary, if not permanent, contraction. During this period the placenta should be delivered. If requisite, the hand should be introduced, and the placenta seized, and, with as little force as possible, removed. The uterus should be suffered to do this action by its own expulsive force.

There is much said about placentas being attached to the uterus, adherent placentas, &c. While I am far from doubting this condition of things to sometimes occur, (as in the case of a woman kicked in the side, by name Cornetty, at the Boston Poor-house in 1844), I am inclined to think it a rare occurrence. Every placenta is adherent, and I defy any one, in an uterus at its full distension, to peel one off from the uterine walls. The placenta is always adherent until the uterine contraction slides the uterus away from its surface, leaving it free. When, therefore, the hand is introduced, and an "adherent placenta" is discovered, it is but another method of stating that the uterus is found but partially, or not sufficiently contracted to have detached the placenta.

The texture of the placenta is of various characters. Sometimes we have one firm and tough. These can be torn off, with sufficient force, provided a border or an edge be found detached upon which to lay hold, or the uterus may be excited. Sometimes they are soft and pliable, when they are easily torn in pieces. Occasionally a small portion remains attached to the sinuses of the uterus, too small for the uterus to act upon as a foreign body. Great injury has, not unfrequently, been done, by attempting to detach this insignificant portion, under the idea of present hemorrhage, and future inflammation to ensue from its presence. The fact is, that in such a case no blood flows through the placenta, for the character is so changed as not to be able to perform this office. Indeed, I do not think there are many who imagine that a hemorrhage from the placenta ever occurs, but from the uterine walls, from which the placenta has been removed:—no blood can flow from the uterine sinuses, for they are firmly plugged by this remaining piece of placenta, so firmly that the plug cannot be easily removed; no hemorrhage can, therefore, ensue, unless it be from the neighbouring sinuses left patulous by the removed portions of the placenta. But if the remaining piece is small, it cannot interfere with the contraction, which will close up the open-mouthed vessels, and thus there will no bleeding ensue from the presence of this small portion remaining.

The only ill result that can therefore occur will be subsequent inflammation. In general this small portion will speedily be detached and discharged by the after-pains—at any rate it cannot be considered to be so fruitful a cause of subsequent inflammation as the forcible attempts to remove it.

It is frequently very difficult to know whether or not the whole placenta is delivered. From the irregular contraction of the uterus there frequently appears to be a portion remaining, when in reality the suspected part is the internal surface of the uterus, somewhat rough where the placenta had been attached. In the case of a lady, to whom I was called at the request of the attending physician, a few months since, confined with a premature five months child, the os was rigid five minutes before the child was expelled. It suddenly opened, expelled the fœtus, and as suddenly closed, retaining the placenta within. When I saw her, the after-birth was partially delivered, in a mangled state, and when I removed the remainder (with much difficulty passing my hand within the cavity of the uterus), it was impossible to say whether it was all delivered or not. Interiorly the sensation to the hand indicated that a portion remained, but I concluded that it was but a part of the uterine surface, and I let it alone; the hemorrhage ceased, and no inflammation occurred, as undoubtedly there would had I attempted to remove this real or supposed portion.

This state of things is of not unfrequent occurrence in abortions and miscarriages. The uterine efforts force through the firm and imperfectly dilated os, the yielding fœtus, adapted by its shape to make an easy exit. When this occurs, the placenta is very generally left behind. Its broad, flaccid mass, resists the attempts of nature, not only to dislodge it, but to force it through the rigid and narrow opening. It, however, not unfrequently succeeds, so far as to separate a portion

from its uterine surface, and thus to cause a continued hemorrhage. The feeble cord is, in the vain attempt to remove it, broken off, and the protruding membranes offer but a feeble hold by which to extract the bulky placenta.

In these cases, it is generally recommended to securely tampon the vagina, and to trust to time for the result. The action is the formation of a clot, thus arresting further hemorrhage, and the leaving the placenta, either to be expelled from the uterus by the further softening and enlargement of the os uteri, assisted by the normal contractions of the uterus, or assisted by ergot; or to be decomposed, and thus flow away, or be absorbed.

It may readily be seen that there are many risks to which the patient is exposed from this treatment. First, the clot intended to restrain further flow, will not be formed until the cavity of the vagina (which is always, no matter how thoroughly plugged, capable of containing more or less blood, perhaps an ounce or two only, but still enough to be often worthy of serious consideration) is filled. Next, the cavity of the uterus will, not unfrequently, continue to receive blood, and often to a very great amount—the uterus may be considered capable of expanding to the size to which it had attained when the labour commenced. In an abortion at two or three months, this quantity will not be very large; but if the patient has previously lost any considerable amount, this is deserving of especial attention.

The tampon, therefore, is to be considered a very valuable means of arresting hemorrhage in cases of abortion when the patient has not previously flooded, but one of doubtful utility if the hemorrhage has been profuse, and rarely if ever to be used in any form of hemorrhage at or near the full time, after the child has been delivered. From the very fact of the tampon shutting the vagina, we are prevented from ascertaining the actual condition of things from time to time, and the result is an entire ignorance whether the continued prostration, the occasional faint feelings, dizziness in the head, *tinnitus aurium*, &c., be caused by a continued hemorrhage, or be but the results of the derangement of the circulation, from the previous great loss of blood, or nervous irritability.

The subsequent ill results from the use of the tampon need not here be enlarged upon. It is only necessary to allude to the uncertainty attending its final removal, and the fear of irritation or inflammation attending its too long use; the danger of renewed hemorrhage from its too speedy removal; the liability of uterine inflammation from the presence of a foreign body, the placenta and clot in the uterus; the chance of phlebitis from the absorption of pus, &c.

It is on this account that writers and practical men of late years have urged the immediate removal of the placenta. In abortions and miscarriages at an early period, generally there is little fear of a want of uterine contraction following. It is not the danger arising from this plan, but the difficulty of effecting it, that has prevented its general adoption.

How shall the small and fragile placenta be seized hold of and withdrawn? Some have recommended the introduction of one finger into the uterus, and bringing down one edge of the placenta, and twisting it round and round, not only thus to detach the entire mass, but to also so shape it that it may the more easily pass through the os. Where this can be done, by all means do it! But it should be remembered that in the great mass of cases, it is impossible to reach the os so as to pass one finger into its cavity, far less to effect any good result, if it arrive there, to say nothing of the utter impossibility of aiding the finger with the thumb of the same hand.

I have, however, effected the desired result, as already reported, in one case, by passing a small pair of polypus forceps through the os, and thus seizing the placenta, twisting it round, and by one or more operations of this sort completely detaching it and bringing it away. This operation I conceive to be the true method of treating these cases, particularly those in which a few more ounces of blood are to be feared as liable to be fatal. The tampon may be used if early applied, and where the pregnancy had not advanced more than three or four months, but never afterwards, unless as a temporary resort, while fitting instruments were obtained.

In cases of flooding at or near full time, when the after birth is retained, I have said that after uterine contractions are obtained, the placenta should be speedily *delivered, and, if necessary*, by introducing the hand. When the hand is intro-

duced, especially if cold, uterine action will take place, very generally. But it should be especially remembered that the placenta is not to be violently torn from the uterus, and removed, unless there be uterine action sufficient to indicate to the operator that the uterus does and will fully contract, lest by so doing new sinuses be laid open, and fresh and increased bleeding be the result. Neither should the hand be removed until the uterus contracts down upon it as it recedes.

Some operators have recommended that a fresh lemon be introduced with the hand, and crushed within the cavity of the uterus, that its acid might act as a local stimulant. Others advise the injection of a large quantity of cold water. I have never personally used either of them, but while I may allow them merit as adjuvants, they cannot be used to the neglect of the plans and treatment I have already stated. I give it with the more confidence, from the fact that, although having had some experience in troubles of this character, I have never had a patient die, either from the immediate or subsequent effects of hemorrhage, from the uterus, accompanying labour.

Whether, therefore, the hemorrhage proceeds from the placenta—as a very few state,—or from the uterine walls, from which it has been torn,—as is the general opinion,—the facts observed by Dr. Mackenzie and others, in their experience, and in experimentation upon the lower animals, all unite in the propriety, aye, the absolute necessity, of removing the placenta. To this I have added some important points, as they seem to me, to guide in performing this serious operation.

But the hemorrhage is not always arrested by this delivery of the placenta, and sometimes, when this is effected naturally, the hemorrhage commences for the first time,—how is this to occur, and how shall we meet its exigencies?

It occurs either from a want of, or an irregularity in, the character of the uterine contraction, in the first place, and secondly, from a mechanical impediment to the closing of the uterus, and a consequent hemorrhage from the patent mouths of the uterine vessels.

The uterus, not unfrequently, seems to have lost its power, and is unable at once to contract persistently and effectually. Its nervous energy is wanting. One seizes it with the hand through the abdominal walls, and it is hard and like a ball under the grasp, but in a few moments it is felt getting softer and softer, and finally the firm mass is not to be found. It seems to have eluded the grasp, but it has only dilated again, again by more external irritation to recontract. But with every dilatation its cavity is filled with blood, and with every contraction the gush is perceptible externally. Whence is this? And what is to be done?

Sometimes a firm contraction is felt, and yet the hemorrhage continues. This may arise from the hourglass contraction, which occurs alike after the placenta is delivered as before.

This irregularity of contraction is developed in different localities; more frequently, indeed, does it occur from the abnormal action of the circular fibres of the uterus, which, by their exclusive operation, cause that form known as the hour-glass; but this same irregularity is manifested also upon the portion below and upon the neck, and thus causing a concealed internal hemorrhage, by the flow of blood being thus prevented from escaping externally, and being perceptible. This form is particularly dangerous, on account of its subtile progress,—not unfrequently the patient is dead before anything is known of it.

In December, 1852, I delivered Mrs. Mason with forceps of a living child, and she was safely put to bed, and I remained with her about an hour. Happening to pass by about an hour afterward, I found that she was complaining of a disturbance of vision, and of hearing water boiling. I was informed that she had not had the least bloody discharge, and that these symptoms had come on after a slight vomiting. On examining the abdomen, the uterus was found much distended, as was afterward known, with clots of blood. This was properly attended to, and she subsequently had no further hemorrhage.—Many similar cases might be mentioned, for they are sufficiently common to have been noted by every practitioner.

It remains now for me to mention the remaining species of uterine hemorrhage, and that is where this is kept up from the presence of a mechanical impediment to the contraction of the uterus. This occurs in the following manner:—

When the placenta is expelled from the uterus, some small clots remain, and the uterus not being immediately contracted, the flow continues until a considerable clot fills the cavity of the uterus. When once this occurs, it is almost impossible for any amount of uterine contraction to expel it. It is not a plain, round, smooth mass, but its surface is closely adherent to the uterine parietes. Every one has seen with how much force the blood drawn into a bowl adheres to it, so that the vessel may be everted without disturbing its contents. This adherence is equally strong to the uterine parietes, and far more extensive. In addition to this, upon the surface to which the placenta was attached, the clot is prolonged into the uterine sinuses, constituting so many firm bonds of adhesion. The strength of this clot is only fully appreciated by those who have attempted to remove them.

Now in all these forms of hemorrhage, occurring after the delivery of the placenta, but one course of *treatment* is called for. The hand should be passed into the uterus. In the first place its introduction will overcome any irregular contraction, for it should be passed through the hourglass, or any other irregular contraction, until it arrives at the fundus. Next, its presence as a foreign body will stimulate the uterus to expel it, and by so doing effect the desired result. Finally, with the hand we should break up the clots, and sweep them all out of the uterus and vagina. The uterus will then contract down to its proper size. It is then to be retained in that position, by the hand external to the abdomen, by the administration of ergot, &c.

The importance of this method of treatment is not generally acknowledged by practitioners, especially in the last form of hemorrhage mentioned. Many hesitate upon breaking up these clots, which must be done again and again, as fast as they may form. It appears to many that a clot always serves to arrest a hemorrhage, and so it does in perhaps every instance except in the hemorrhage from the uterus after the delivery of the placenta. In this case, as I have attempted already to show, the bulk distends the uterus, and thereby forces open the uterine vessels, which are closed by withdrawing the clot, and the consequent contraction. It should be remembered, and it is generally lost sight of, by the physician, in his anxiety that the patient is as thoroughly bled, whether the blood be drawn into a bowl, is received into the bed clothes around her, or is clotted in the cavity of the uterus.

A most marked instance of the great importance of this method of treatment, occurred in a case in which I had been called in consultation, in consequence of some difficulty occurring in a breech presentation at a first delivery. The patient, a young woman, had been long ill, with intermittent fever, had an enlarged spleen, &c., and was delivered of twins, both breech presentations. Some ten minutes after the labour was finished, and she had been carefully bandaged, &c., our attention was particularly drawn by a sudden vomiting, almost coincident with which a gush of blood from the vagina was heard. Ergot was given, cold applied to the abdomen, and contractions brought on to such a degree that the uterus was hard and firm under the hand, but larger then when it contained the placenta. The contraction continued persistent; still she was faint, almost pulseless, covered with a cold sweat, and at intervals much worse. It was evident that the hemorrhage was continuing internally, although none escaped. But one duty remained. Introducing the hand I swept out every clot, the uterus contracted to a proper size, no further hemorrhage ensued, and the patient was saved, who, by any other mode of treatment, would have been lost.

In the remarks already made, it will be seen that I have omitted to speak of any methods of assistance usually enumerated, and this is because they are only adjuvants, perhaps of some little value in connexion with other treatment, but not to be attended to, to the neglect of the means already dilated upon. I will mention two of them. The bandage applied to the abdomen; compression of the descending aorta.

The bandage, or roller, applied generally after labour, is very often productive of more injury than benefit. In cases of severe flooding, it is generally inadmissible, and for the simple reason that it is in the way. Its presence prevents the manipulation of the abdomen, the application of ice, the douche, &c., and prevents *the attendant from* obtaining the very important information of the presence or *absence of uterine contractions*. There are some who hasten to put on the band-

age after delivery, as if the life of the patient depended upon it. Nature puts no bandage upon the cow, or the sheep, and in the Lying-in Hospitals of Paris, the midwives put none on the women. The cows and sheep have no hemorrhage, and out of some seven hundred women that I saw confined at l'Hopital des Cliniques, under the charge of Dubois, I did not see one solitary case of flooding.

A woman, after confinement, needs a bandage just as much, or rather, upon the same principles, that guide its use in case of tapping for ascites. After all danger of hemorrhage is passed, a bandage may be ayplied for support to the abdomen.

When properly done, it should be about half a yard wide, and applied much lower down than usual, the first pin should be placed at the lowest border, near the commencement of the upper third of the thigh. Over the uterus the pressure should not be great, but tighter above it, so that the result is, that the uterus is rather pressed down than upon.

Sometimes it is desirable to place a pad under the bandage, but this should not be done upon the uterus, but above it, so as to prevent the uterus from expanding, while at the same time it affords some pressure upon the descending aorta, immediately before its bifurcation.

Compression of the aorta, is a form of treatment often more theoretical than practical, and where, from the thin habit of body, it is practical, it is of less value than would be supposed. In the cases where I attempted to put this suggestion in practice, I have found little benefit to flow from it.—*American Med. Monthly Journal, June*, 1855, *p.* 432.

114.—*Instrument for the Removal of the Ovum in Abortion.*—Dr. CHURCHILL exhibited to the Dublin Obstetrical Society, some time since, an instrument which he thought might be useful for removing the ovum when it protrudes just through the os uteri in cases of abortion, and especially in those cases where an undilatable condition of the vagina forbids the introduction of more than one finger. The instrument consists of a steel rod (electro-plated) passing through an elastic catheter. One end of the steel rod is divided into three prongs, curved at their points, and divaricating, but closed by sliding the catheter towards the end. At the upper end, the catheter is guarded by a silver rim, and at the lower, it is furnished with rings, by which it can be moved up and down with one hand. The instrument guided by the forefinger, is to be passed up to the protruding ovum, and the catheter being withdrawn so as to allow the points to separate as widely as needed, the ovum is to be carefully caught, and the instrument, again closed, withdrawn. If the ovum be not very much decayed, or very adherent, it will be brought away.—*Dublin Hospital Gazette.—Lancet, July* 28, 1855, *p.* 82.

115.—CASE OF INDUCTION OF PREMATURE LABOUR FOR ACUTE CHEST COMPLICATION.

By Dr. ALEXANDER KEILLER, Physician to the Royal Infirmary, Edinburgh.

(Reported by Mr. H. MARSHALL, Resident Assistant.)

The subject of this case was recently admitted into one of Dr. Keiller's wards, in the Royal Infirmary, suffering from a considerable affection of the lungs, for which it was subsequently found necessary to induce premature labour.

"Hannah Donaldson, aged 26, was admitted into the Royal Infirmary on the 21st Feb. 1855. At the time of her admission she was pregnant, and thought she was about a month from her confinement. She stated that she had been from her childhood very much troubled with shortness of breath, but unaccompanied with cough, with the exception of a short time before the birth of her first child (15 months since). Both her father and mother were asthmatical.

"Two days before admission, her present attack commenced with nausea and vomiting, which were followed by a severe cough. She was seen first by a dispensary pupil, who cupped her over the sternum, but drew only a small quantity of blood.

"On her admission (on the afternoon of the 21st Feb.), respiration was very

hurried and difficult, her face congested, and her pulse rapid and weak. Her cough was very severe, with frothy expectoration. On auscultation, coarse crepitation was discerned all over the posterior part of both lungs, and anteriorly moist râles were plentifully heard Percussion was normal. She appeared labouring under a very severe attack of capillary bronchitis; and was ordered a mixture of carbonate of ammonia and decoction of senega. The dyspnœa increased in the evening, but got better as the night advanced. On the following day she was somewhat better. The difficulty of breathing less, and the pulse stronger; antimony was prescribed in small and repeated doses, the former mixture being still continued. On the evening of the next day (the 23rd) she was decidedly worse, the dyspnœa appearing likely to prove fatal. The pulse became very weak. She was ordered wine, and chloroform internally, from which she experienced considerable relief. Dr. Keiller saw her about 10 p.m., and determined to bring on labour. At that time the fœtal heart could be heard towards the right iliac region. Dr. Keiller thought it better to deliver her in such a way as to give the child the best chance of surviving; and, therefore, instead of puncturing the membranes, with the view of merely diminishing the size, and thereby relieving the chest-symptoms, adopted the following mode. Having laid the patient on her left side (though the difficulty of breathing was greatly increased by this position), he introduced Dr. Weir's instrument for inducing premature labour, about three inches into the os uteri, between the membranes and the anterior wall of the uterus. About a quart of warm water was injected, and a sponge-tent immediately afterwards introduced within the os. Two hours afterwards (about half-past one a.m.), water was injected into the vagina, so as to distend it. Soon after 4 a.m., symptoms of labour first appeared, the sponge-tent being then expelled when the patient was at stool. From this time the labour advanced, the os slowly but regularly dilating, and on subsequent examination, a foot and the umbilical cord was felt presenting. The liquor amnii came away about 10 o'clock, and both feet and a large loop of the umbilical cord descended immediately into the vagina. The cord, however, was perfectly pulseless, and the case was allowed to proceed without interference, and the child was born about half-past 10 o'clock. The placenta was expelled in about half an hour. The discharges were moderate in amount, and no bad symptoms connected with the labour subsequently occurred. The chest-symptoms were decidedly relieved after delivery, and, with the exception of a few days' diarrhœa, and a slight attack of pleurisy on the right side, she steadily continued to improve, and left the infirmary on the 17th of March, at her own desire, nearly quite well."

The instrument referred to in the above Report is that invented by Dr. Graham Weir, who has contrived it with the view of combining the two plans of Hamilton and Kiwisch; the former consisting of the uterine introduction of a female catheter, and the other, in the vaginal injection of tepid water; both modes of inducing premature labour acting somewhat in the same way, viz. by separating the membranes to some distance from the vicinity of the os.

Dr. Weir's instrument consists of a flattened silver tube, similar to a large female catheter, and which is attached, when used, to an ordinary injecting syringe, or to a Higginson's pump, which is better adapted for the purpose, as it can be more easily worked by one hand, the other hand being thus left at liberty to properly direct the tube within the uterus.

The tube, or large flattened catheter, measures about seven and a half inches in length, and is nearly half an inch in breadth. Three inches from its extremity it is bent in a curved form, to such an extent as to throw the point of the tube about one inch off the straight line; on each side are situated five small openings, which are placed at regular intervals, extending back one and a half inches from the point of the instrument.

In using it the tube is first introduced cautiously within the os to the extent of its curve, viz. about three inches, and then, by means of the attached syringe, the tepid water is injected so as to act by slowly separating the membranes.—*Edinburgh Med. and Surg. Journal Case Book, April*, 1855, *p.* 39.

116.—ON THE CONTAGIOUS CHARACTER OF PUERPERAL FEVERS

By Dr. Charles D. Meigs, Philadelphia.

[Is the disease communicable by a third party from a patient labouring under it to another during or after her delivery?]

1. It seems impossible to doubt that contagious matter capable of exciting puerperal fever may be conveyed by a third party unaffected by it; for example, in the cases already mentioned of puerperal fever following the services of medical men and nurses who were in attendance upon erysipelas immediately before. The cases are too remarkable and too numerous to be regarded as coincidences, nor would even the prevalence of an epidemic of puerperal fever at the time invalidate our conclusions; it might certainly render the cause more influential.

2. It is the recorded opinion of Rokitansky and Semelweiss, that morbid matter acquired in the dissection of subjects not dying of childbed fever may be conveyed by the dissector and excite disease in a patient delivered by him; and to this, among other causes, has been attributed the prevalence of puerperal fever in the wards of the Vienna Lying-in Hospital. A celebrated foreign practitioner attributed two outbreaks of this disease among his private patients to his having handled morbid specimens just before attending the patient in her accouchement.

3. We should, therefore, have less difficulty in believing that similar effects may be produced by those passing from the dissection of puerperal patients to the delivery of healthy ones, especially if the most rigorous precautions were not observed. For instance, in the autumn of 1821, Dr. Campbell, of Edinburgh, attended the dissection of a married woman who died of the disease, after an abortion of the early months; he removed the pelvic viscera and external parts, and carried the whole in his coat pocket to the class room. The next morning, dressed in the same clothes, he assisted with some of his pupils at an instrumental delivery at Bridewell. This woman was seized with the same affection, and died. The same night he accompanied Dr. Orr to the delivery of a woman residing in the north back of the Canongate; she was equally unfortunate; and three other poor women shared the same fate in quick succession. In a subsequent year, 1823, he assisted at the dissection of a childbed fever case, but could not wash his hands with the care he desired; thence he went to attend two other women in labour, both of whom died.

At a meeting of the College of Physicians, Philadelphia, U. S., Dr. Warrington stated that after assisting at an autopsy of puerperal peritonitis, he was called upon to deliver three women in rapid succession. All these women were attacked with different forms of what is commonly called puerperal fever.

"Mr. Davies states that in the autumn of 1822 he met with twelve cases, while his medical friends in the neighbourhood did not meet with any, or, at least, with very few. He could attribute this to no other cause than his having been present at the examination of two cases, and his having conveyed the infection to his patients, notwithstanding every precaution."

"A young surgeon, shortly after examining the body of a sporadic case that had died, delivered three women, who all died of puerperal fever."

"Mr. Ingleby states that two gentlemen, after the post-mortem examination of a case of this disease, went in the same dress, each respectively, to a case of midwifery. The one case was attacked in thirty hours afterwards, the other in three days. One of the same surgeons attended, in the same clothes, another female, and she was attacked on the evening of the fifth day, and afterwards died."

Now, with regard to the cases attended immediately after the post-mortem dissection, there seems little room for doubt as to the exciting cause of the fever. It may have been conveyed in the clothes or on the hands of the accoucheur, but it is, at any rate, adequate to the effect, and the sequence is too simple and too close to be rejected.

4. Can we venture to say the same of the following case?

"Dr. Merriman mentions in the 'Lancet' for May 2, 1840, that he was present at the examination of a case of puerperal fever at two P.M. *He took care not to touch the body.* At nine o'clock the same evening he attended a woman in labour; she was so nearly delivered that he had scarcely anything to do. The next morning she had rigors, and died in forty-eight hours."

We do not know whether puerperal fever was epidemic at the time, but the cause suggested seems so inadequate that we should be inclined to look for some other explanation.

5. So far, then, we have seen medical men engaged in handling morbid matter, their dress and persons exposed to the effluvium from dead bodies, and passing directly to attendance upon lying-in women; here we have a distinct appreciable exciting cause, adequate to the production of disease in healthy persons, and which may have been, and probably was, conveyed to the patients who were first attended, and in whom puerperal fever appeared. But in several instances the disease was not confined to the first woman attended, but appeared in others delivered successively. How are we to explain this, and how can we explain the pertinacity with which puerperal fever seems occasionally to track the footsteps of one or two practitioners, whether at first lighted up by morbid matter derived from dissection or not? Take the following examples. Dr. Gooch mentions that—

"A general practitioner, in large midwifery practice, lost so many patients from puerperal fever, that he determined to deliver no more for some time, but that his partner should attend in his place. This plan was pursued for one month, during which not a case of the disease occurred in their practice. The elder practitioner being then sufficiently recovered, returned to his practice, but the first patient he attended was attacked by the disease and died."

This latter fact seems to us to prove that the disease was epidemic at the time. Similar instances have come to our knowledge more recently.

"Dr. West, of Philadelphia, states that seven females delivered by Dr. S. Jackson, in rapid succession, were all attacked with puerperal fever, and five of them died. These were the only cases that occurred in that district, for the women became alarmed, and sent for other assistance."

"A physician in Boston, U.S., had the following consecutive cases:—On March 24th, April 9th, 10th, 11th, 27th, and 28th, and May 8th, seven in all, of which five died. He then left town."

Another physician writes to Dr. Holmes as follows:

"The first case was in February, 1830, during a very cold time. She was confined on the 4th, and died on the 12th. Between the 10th and 28th of this month I attended six women in labour, all of whom did well except the last, as also two were confined March 1st and 5th. Mrs. E., confined February 28th, sickened and died March 8th. The next day, March 9th, I inspected the body, and the night after attended a lady, Mrs. G., who sickened and died on the 16th. The 10th I attended another, Mrs. B., who sickened but recovered. March 16th I went from Mrs. B.'s room to attend a Mrs. H., who sickened and died on the 21st. The 17th I inspected Mrs. G. On the 19th I went directly from Mrs. H.'s room to attend another lady, Mrs. G., who also sickened and died on the 22nd. While Mrs. B. was sick on the 15th, I went directly from her room, a few rods, and attended another woman, who was not sick. Up to the 20th of the month I wore the same clothes. I now refused to attend any labour, and did not until April 21st, when, having thoroughly cleansed myself, I resumed my practice, and had no more puerperal fever. The cases were not confined to a narrow space. The two nearest were half a mile from each other, and half that distance from my residence. The others were from two to three miles apart. There were no other cases in their immediate vicinity."

Dr. Ramsbotham has known the disease to spread through a particular district, or to be confined to the practice of a particular person, almost every patient being attacked by it; whilst other practitioners had not a single case; and he considers the distemper as being capable of conveyance not only in common modes, but through the dress of the attendants on the patients.

In Sunderland, 40 out of 53 cases occurred in the practice of one surgeon and his assistant.

Dr. Roberton, of Manchester, states, that between the 3rd of December, 1830, and January 4th, 1831, a midwife attended 30 patients of a public charity, 16 of whom had puerperal fever, and all died. Other midwives of the same institution attended 380 women during the same time, and none suffered from it. He also *mentions the case of* a practitioner, who introduced the catheter for a poor woman

in puerperal fever, late one evening, and attended a lady in her confinement during the same night, who was attacked with puerperal fever on the same day.

Analogous cases have been recorded by Dr. Pierson, of Salem, U.S., Dr. Peddie, and Mr. Beecroft; and such examples are, doubtless, very startling, and require a careful examination, to ascertain their exact value as bearing on the question at issue; but we shall first hear what Dr. Meigs says on the subject. His first argument is from personal experience.

"I have practised midwifery for many long years. I have attended some thousands of women in labour, and passed through repeated epidemics of childbed fever, both in town and hospital. After all this experience, however, I do not, upon careful reflection and self-examination, find the least reason to suppose that I have ever conveyed the disease from place to place in any single instance. Yet for many years I carefully considered whether such a transfer by a third person might be possible, and carefully read the statements of various authors to that effect. In the course of my professional life, I have made many microscopic researches of childbed fever, but never did suspend my ministry as accoucheur on that account. Still I certainly never was the medium of its transmission. I have, in numerous instances, gone from the bedside of women dying of childbed fever, whether sporadic, or the most malignant degree epidemic, without making my patients sick. I have also endeavoured to assist my brethren, when they had such cases, and I had none.

"In a series of labours, 468 in number, and beginning with No. 1, I find that Nos. 18 and 19 were affected, and that No. 18 died with childbed fever; No. 31 was sick, but recovered; Nos. 195 and 259 were sick, but recovered; but 291 died, as did also 293. Nos. 332, 339, 435, 444, and 445 were attacked, and recovered. The above cases—viz. 18, 19, 31, 195, 259, 291, 293, 332, 339, 435, 444, 445, 455, are, in all, 13 cases in 468 labours, of which 3 died and 10 recovered. Now, if I was the medium of contagion for any one of that series of 468 confinements, why did I poison them in the ratio and order above set forth; and why did I not communicate the disease in more than 13 out of 468 cases? What became of my nebula from 31 to 195; to 259, and between 291 and 445, and so to the end, or 468? Such a table is far more easily explained by regarding the falling-out of the cases as coincidences and accidents, than as material causations, through a private pestilence."

Again, as regards the singular limitation of the disease to the practice of one person, Dr. Meigs observes:

"At page 631 of my work 'On Obstetrics,' second edition, I have related the circumstances attending the practice of a physician of Philadelphia, who, in one of our epidemic seasons, lost a considerable number of women in childbed. His patients were scattered over a great superficies of the city and districts, some of them being more than two miles from the others. At that time many women were attacked, in various parts of Philadelphia, as well as in the State of Pennsylvania; yet so far as has come to my knowledge, no other medical gentlemen happened to encounter such a great number of childbed fevers as he did. I visited, in consultation with him, some of the very worst of the cases, and touched the patients, and was as liable to imbibe or be clothed with the effluvia from their bodies as he was; nevertheless, I did not carry poison or other cause of disease to any patient of mine; and if not I, then how should he become capable of doing so? He is a gentleman who is scrupulously careful of his personal appearance, of great experience as a practitioner, and well-informed as to modern opinions on the contagion of childbed fever. Still those of you who are contagionists will say that he carried the poison from house to house, and if so, then you ought to give some *rationale* of the fact. Did he carry it on his hands? But a gentleman's hands are clean. Did he carry a nebula or halo about him? Then why not I also? If the nebula adhered to his clothing, it might as well have adhered to mine.

"What will you say, young gentlemen, of the experience of my friend, Dr. D. Rutter, formerly of Philadelphia, but now of the city of Chicago, who passed through terrible scenes here, in an epidemic of childbed fever, some years ago, when he had a most extensive midwifery practice in town and country? During that sad time, I saw several fatal cases with him in consultation; and though he seemed to be tracked by the cause of the disease, to judge by the numerous attacks

of it in his lying-in patients, I was not tracked by it. I took no precaution, except such as every decent man should be supposed always to take; yet I never did carry the disease from his cases to any houses where I visited lying-in women. But he was charged with being a carrier of contagion. How could he carry the cause? What was the cause? Was it some ozone that stuck to his hands or coat? Was it a nebula, a halo, or a miasm that mixed with the hairs of his head or the woollen or cotton fibres of his dress? or an exhalation from his skin, or a halitus from his lungs, like the fiery breath of Cacus? And can you say of him, as Virgil sings—

"'Paucibus ingentem primum, mirabile dictu
Evomit.'—*Æneid*, lib. viii. p. 252.

Come now, was not such a poison more sticky than bird-lime, seeing that Dr. Rutter, worn out with fatigue, and wounded in spirit by his cares for the unfortunate victims of an epidemic disease, left the city for the purpose of gaining some strength, and to escape from the repetition of such disheartening labours, and that even a quarantine could not liberate him from this poisoned cloud? One might hope it would have been blown away by the wind, or that it would have evaporated or become too dilute to kill, after a ride of seventy miles, and an absence of ten days. But it happened, after this rustication of ten days, at a distance of thirty-five miles from the city, that your bird-lime or cloud still adhered to him, as your contagionists would say. And more than that, he could not even wash it away, or shave it off; for upon coming back to the city, and to his professional toil, before he engaged in practice again, he caused his head to be close shaved; he entered a warm bath and washed himself clean; he procured a *new wig, new clothes, new hat, new gloves, and new boots.* He did not *touch* anything he had worn, and took the precaution to leave his pencil at home, and his watch. Well, what do you think happened next? He went out to attend a lady in labour, who had a favourable parturition, yet was next day assailed by a horrible childbed fever, of which she died, in spite of all his efforts, and mine to help him; for he called me in consultation immediately after being summoned himself to her chamber. I know that that lady died with peritonitis. I was a great deal with her in her illness, but she did not poison me or my clothes; for although I went on with my practice, I poisoned nobody, and made nobody have even so much as a finger-ache.

"Dr. Rutter repeated this attempt at personal disinfection at a subsequent period, which was two years later, and with the same ill-success. The gentleman was much and disparagingly spoken of on account of the above-mentioned events in his practice, which I cannot but regard as both cruel and unjust, particularly as his success in the treatment was most brilliant; for during the epidemic he had charge of 70 cases, of which he lost only 18, and I know not the man who can boast of a higher triumph of his art of healing in this malady."

Let us now look a little closer into this matter. The broad fact apparently established by the foregoing observations is, that puerperal fever does sometimes prevail chiefly, or is altogether limited, to the patients of certain practitioners, and the question arises, To what is this owing?

Whilst we feel compelled by the evidence on record to admit the possibility of puerperal fever being conveyed and communicated or excited by those who attend midwifery cases after being employed in dissection or post-mortem examinations, and also by those who are much in contact with the patient or the discharges, especially if strict precautions are not adopted as to cleanliness and change of dress, we do not feel that in other cases, where no such conditions exist, the evidence at all justifies our attributing the spread of the disease to contagion, and we think fewer difficulties and contradictions are incurred by attributing its extension to epidemic influence, and its limitation to conditions or circumstances of which we are at present ignorant.—*British and Foreign Med.-Chir. Review, Oct.* 1855, *p.* 332.

117.—ON THE UTERINE SOUND.

By Professor Scanzoni.

The following abstract of some remarks by Professor Scanzoni on the uterine sound is extracted from the 'Monatsschrift für Geburtskunde und Frauenkrankheiten' for May, 1855. Having used it for eight years, he has not found it to merit the value set on it by some obstetricians. He considers its use according to the different objects for which it is employed.

1. As a means of determining the permeability of the cavities of the cervix and body of the uterus, which is indispensably necessary for the diagnosis of all forms of imperforation, obliteration, or contraction of the organ. Professor Scanzoni here says that it is often difficult and even impossible to introduce the sound when none of these morbid states are present; so that we cannot always arrive at a conclusion as to the permeability of the uterine cavity. If atresia of the uterus is indicated by retention of the menstrual fluid, then the use of the sound is superfluous. The atresia which occurs in old age at the upper part of the cavity of the cervix cannot be distinguished by the sound from simple narrowing; and at this age the diagnosis is of no practical interest.

2. As a means of diagnosis in pregnancy, the uterine sound can have no use. The mucous plug is not, however, as Kiwisch has asserted, an impediment to its passage.

3. As a means of determining the long diameter of the uterus, for the diagnosis of morbid changes in its size. This it is possible to accomplish, but it is not important for diagnosis and treatment. In enlargement from chronic metritis, it is not always possible to ascertain the measurement; and, though some have asserted that the presence of the sound in the uterus may be ascertained by feeling it through the abdominal walls, Scanzoni says that the uterus is sometimes so thickened that this cannot be done. The uterine sound is not to be depended upon as a guide in the diagnosis of thickening of the walls of the uterus from fibroid tumours, for which purpose some have stated it to be adapted.

4. As a means of examining the uterus when it is immovably fixed by other swellings. In these cases, Dr. Scanzoni allows it may be sometimes useful; but he does not consider it absolutely necessary, as a manual examination is generally sufficient, and the use of the sound is often very painful, and may produce inflammation and other morbid effects.

5. As a means of ascertaining the thickness and resistance of the walls of the uterus. This is of little use in practice; as the thickness of the uterine walls may vary in the same person; and very often the thickness of the abdominal wall, or the presence of a tumour, makes it impossible to feel the uterus, which has been raised on the end of the sound.

6. As a means of ascertaining whether the uterine cavity is single or double; This has not yet been realized in practice.

7. As a means of determining the presence of anteversion and retroversion, Dr. Scanzoni regards the sound as possibly useful, but not absolutely necessary.

8. As a means of ascertaining the nature of the contents of the uterus the sound can be of no value, being smeared with lard or oil.

9. As a means of determining the irritability of the uterus. Here Scanzoni advises that when, by introducing the hand, or by the other symptoms, a painful state of the uterus is ascertained, the use of the sound should be desisted from.—*Association Med. Journal, June* 1, 1855, *p.* 516.

118.—CHRONIC INVERSION OF THE WOMB.—REMOVAL BY LIGATURE.

By T. P. Teale, Esq., F.L.S., Surgeon to the Leeds Infirmary. (Reported by Mr. Scarth.)

[This woman was forty-eight years of age, and the mother of eight children. When admitted into the Leeds Infirmary she was in a state of extreme exhaustion and anæmia. The case presents several points of very considerable interest, as the absence of the ordinary causes, the unusual time at which the symptoms first made

their appearance, and there not being the slightest constitutional irritation from the application of the ligature.]

She states that up to the time of her last labour, which occurred five years ago, she had always enjoyed good health. From this labour, which was more tedious than usual, she recovered favourably, and continued to enjoy fair health for two years and a half, with the exception of suffering from pain in the lower part of the back. About this time, the menstrual discharges became more profuse, and of longer duration, and were attended with bearing-down pains. In a short time the discharges became incessant both night and day, varying only in intensity at different times. This state having continued more than two years, she came to the Infirmary, blanched and feeble, and incapable of exertion.

On examination, a tumour of firm, but not very hard consistency, was found projecting through the mouth of the womb into the vagina. The tumour was of rounded form, but a little flattened in the antero-posterior direction; its length 1¼ inch, breadth at the middle part about 1¼ inch, at the neck, which was surrounded by the mouth of the womb, one inch. The mouth of the womb only loosely encircled it, and would allow of the top of the finger being inserted to the extent of the third of an inch, so that the points of inflexion of the tumour could be distinctly felt all round.

The patient having been examined by Mr. Teale, along with his colleagues, Mr. Smith and Mr. Samuel Hey, there was no difficulty in deciding that the complaint under which she laboured was inversion of the womb; but the time and mode of its occurrence were not apparent from the account given by the patient, nor was any light thrown upon them by the inquiries subsequently made. Mr. Teale wrote to the surgeon who attended her in her last labour, five years ago: this gentleman stated that he found in his books the entry of her delivery at the time mentioned, but without a note of any unusual occurrence; his practice being to enter a short notice whenever anything of importance connected with the labour occurred. His books also showed that no attendance beyond what was usual was required, and that she recovered without any material drawback. He afterwards lost sight of her. The patient further stated that she never had a mi-carriage since her labour five years ago. The inversion then, if it had occurred at the time of the last labour, must have been unattended at the time by any of the symptoms indicative of this accident, and must have remained two years and a half without causing inconvenience, which is highly improbable. On the other hand, if it occurred two years and a half ago, when the symptoms indicative of it commenced, it is remarkable that it should have arisen independently of pregnancy or polypus tumour.

On the 6th of April, Mr. Teale, having drawn the tumour downwards by hooked forceps, transfixed its neck by a nævus-needle covered with a double ligature. The loops of string being divided, the two ligatures were then tightly tied, one on each side of the neck of the tumour. The patient was placed in bed, and an opiate was given to her.

She proceeded from day to day without pain or fever, the pulse never rising above 85. On the seventh day after the operation, the strangulated mass was found loose in the vagina, and was removed in a softened and putrid state. The central portion of the tumour, which alone remained free from decomposition, showed under the microscope the natural structure of the womb.

The bloody discharges ceased immediately after the operation. On the sixteenth day, however, there was a slight discharge of blood from the vagina, attended with pain in the pelvis, and for a few days with slight phlegmasia dolens of the right thigh. After this no discharge of blood took place. On the 1st of May she was able to walk about, had greatly improved in condition, and was made an out-patient.

For a few weeks she continued to attend, having remained free from pelvic disturbance, but occasionally suffering from epistaxis.—*Med. Times and Gaz., Sept.* 1, 1855, *p.* 213.

119.—ON DERANGEMENT AND LOSS OF SIGHT IN WOMEN DURING SUCKLING.

By Dr. R. Taylor, Surgeon to the Central London Ophthalmic Hospital.

[Whatever reduces the powers of the system, and impairs the quality of the blood, such as diarrhœa, leucorrhœa, or excessive natural secretions, so as to act as a drain on the system, may be followed by impairment or loss of vision, which, when detected early, is very amenable to treatment, whereas, when neglected, it not unfrequently terminates in total blindness.]

What is popularly termed "weakness of the eyes," in other words, inflammation of the palpebral conjunctiva, with slight intolerance of light, is the first symptom, and one which is very common, even with robust women, after eight or nine months' suckling of a strong child. In the majority of instances, it goes no further, and when the infant is weaned, the eyes recover their strength. In other cases, however, the sight itself is affected, and a thin grey mist appears to intervene between the eye and the object of vision; this may be permanent, or it may disappear on lying down, or after taking a full meal, or any stimulant. Gradually the dimness increases until the outlines only of large objects can be distinguished, and, finally, even the perception of light from darkness is lost. In some instances, the last stages of the disease are sudden; the patient retires to rest with a certain amount of vision, and awakes in total darkness. Occasionally, there are variously-formed luminous or coloured spectra; more commonly, the obscurity is caused by a mist of gradually increasing density. I have seen very few cases in which the eyes have suffered simultaneously to an equal degree; generally, one is much in advance of the other, so far as the disease is concerned; thus, with one eye a moderate-sized print may be read, while the other is completely obscured. Persistence in the exciting cause, however, and still more, injudicious treatment, rapidly brings them both to the same condition.

Most frequently there are not any objective symptoms, with the exception of a certain amount of congestion of the palpebræ, and sometimes, also, of the ocular conjunctiva; occasionally, but by no means invariably, there is some sluggishness of the pupil. In exceptional cases, of which I have seen but few, there has been manifest inflammation of the whole eyeball, as indicated by a zone of distended vessels around the cornea, a discoloured iris, a distorted pupil, and an effusion of soft, greyish-coloured lymph between the pupillary margin of the iris and the anterior capsule of the lens. I have never seen the cornea in any measure affected, though, from Dr. Mackenzie's description, phlyctenulæ and ulceration appear to be frequent complications of the disease as it occurs in Glasgow. When there are outward evidences of ophthalmitis, there is always more or less pain, sometimes very severe. In cases where there are not any objective symptoms, there is seldom more than occasional deep-seated, dull aching, or there may be complete absence of any uneasy sensation.

The disease attacks women at all periods of life during lactation. As might be expected, it occurs most frequently in weak, ill-nourished, or strumous subjects; but it may be induced even in those who are naturally of the most robust constitution, by undue "lactation," as it is termed, or, in other words, by the practice which is almost universally prevalent among the lower orders of the metropolis, of keeping the infant almost continually at the breast, by night as well as by day. At this hospital, the majority of patients have been women from 20 to 30 years of age; the oldest that has come under my care has been 42. Some had suckled their children for two or three months only, others for upwards of a year; all had done so in the injudicious manner above described, and all presented the ordinary symptoms of anæmia in a marked degree.

In the above description, it is evident that several varieties, or rather degrees, of disease have been included, and the distinction must be carefully made in attempting to form any opinion as to their pathology. In one class of cases it is obvious, from the external appearances, that all the tissues of the eyeball are volved in inflammation; in a second, there is not any reason to suppose that inflammation is present, even in the slightest degree; the vision is impaired or improved according as the patient is exhausted or stimulated—in the erect or recumbent posture. This condition is very commonly seen in patients suffering

from hemorrhage, whether sudden and profuse, or in smaller quantity and long continued, and is unquestionably due to the deficiency of blood thus occasioned. A certain supply of healthy blood is as necessary to the eye as to any other organ of the body, in order that its functions may be duly performed—in fact, the portion of blood which is, for the time being, co-operating with the retina and other tissues in affecting vision, is as much entitled to be described as one of the ocular tissues as any of the others; it differs chiefly in being more rapidly changed. In the disease in question, the blood is not only diminished in quantity, but impaired in quality; and the eye consequently suffers in common with every other organ of the body.

In a third class of cases, the vision is not subject to such fluctuations, but is permanently impaired, often to a very great extent; while at the same time there are not any objective symptoms to guide us in forming our opinion as to the condition of the retina. In many, probably in most of such cases, there can be little doubt as to the correctness of Dr. Mackenzie's assertion, that "the most momentous part of the disease is really a chronic inflammatory state of the retina." (On Diseases of the Eye. Ed. 4, p. 577.) This is confirmed by the permanence of the blindness in neglected cases, and by the gradual manner in which it yields to a system of treatment based upon this view of its pathology. But this explanation is not admissible in every instance; the unvarying nature of the blindness, even when it has continued for many days, is not of itself sufficient evidence to warrant us in concluding that the retina is inflamed: for we find by experience, that such cases frequently recover rapidly and completely, even from the most total darkness, under a system of tonic treatment alone—a result which our present pathological and therapeutical knowledge would forbid us to expect, were the blindness due to inflammatory deposit. I have a patient at present under my care in whom the recovery from total darkness in one eye, to perfect vision, was complete in ten days; a violent attack of diarrhœa then brought on a relapse, so that she could not, with the eye in question, decipher the largest type; she has now, after the lapse of a week, very nearly recovered, under the use of tonic medicines alone, and without any local applications, such as leeches, blisters, or lotions.

A satisfactory explanation of such cases, which are otherwise very puzzling, has, I think, been recently discovered by means of the ophthalmoscope. It has been found by those who have employed this instrument extensively, that, independently of inflammatory action, an effusion of fluid may take place between the choroid and the retina, perhaps œdema of the latter tissue itself, by which it is raised above its ordinary level, forming a projecting ring around the entrance of the optic nerve, and thus undergoing an amount of compression quite sufficient to account for any degree of disturbance of its functions, even were its proper tissue unimplicated in the fluid effusion. I am not aware that this condition has been witnessed in patients labouring under the peculiar form of disease at present in question, but it has been chiefly seen under precisely analogous circumstances, namely, in anæmic and chlorotic females, the subjects of impaired vision. It is, therefore, not unreasonable to assume that women exhausted and anæmiated by prolonged or excessive lactation, may suffer in a similar manner; it is well known that they are especially liable to œdematous swelling in various parts of the body, where its presence is visible, as in the ankles, the eyelids, or even in the sub-conjunctival cellular tissue; analogy, therefore, supported by the practical results of treatment, warrants us, in the mean time, in assuming that fluid and non-inflammatory effusion may equally occur between the choroid and the retina, or even interstitially into the texture of the latter tissue itself. Pending further investigation, however, the question must be regarded as still *sub judice*.

Fortunately no such uncertainty exists as to treatment. The exciting cause of the disease is manifest, and this being removed, its effects will, in the great majority of instances, yield to very simple remedies.

In all but the slightest cases the child should be immediately weaned, or, at the utmost, should not be put to the breast more than twice in the twenty-four hours; and this concession can be made with safety to those patients only whose resolution can be depended on. After many trials I find that in hospital practice "there is no medium between excess and total abstinence," as the cries of the infant when *first deprived* of its accustomed nutriment, and the dread of rapidly recurring

pregnancy, are temptations which few among the more uneducated classes can resist until structural changes have taken place which are too frequently irremediable. In all cases, therefore, where the dimness of vision is permanent, the infant should be immediately weaned; and even in slighter cases this measure may be recommended.

The exhausted and anæmic condition of the patient naturally indicates the employment of a stimulating plan of treatment, and the administration of iron in one or other of its various preparations. The details will occur to every one who has had any experience in the management of the diseases of exhaustion, in whatever form. I may briefly mention the method which I have found most successful in the cases which have come under my care.

As a rule I have found ammonia the most generally useful of stimulating medicines, and this may be given either along with iron, as with the ammonio-citrate, or it may be given with a vegetable tonic some time before the meals, the iron being taken while digestion is in progress. The sulphate of iron, with or without quinine, and the muriated tincture, alone or combined with the tincture of hyoscyamus, I have also found to be very efficacious remedies; but I do not believe that any importance is to be attached to particular combinations or formulæ; if the tonic principle of treatment be effectually carried out, the results will be satisfactory whatever variations may occur in the details of individual practice. Thus, for instance, I have met with several cases in which iron, in whatever form, could not be borne, and in which the patients recovered completely, though perhaps more slowly, under the use of vegetable tonics with ammonia or the mineral acids.

It is almost superfluous to observe that, in connexion with the medicinal measures, the diet of the patient should be liberal and nourishing; and I have never seen any bad results from the moderate use of malt liquors, by those who have been accustomed to take them daily, while in health. Further, leucorrhœa, which is a very frequent accompaniment of this form of impaired vision, and which contributes much to maintain and increase the general debility, should be arrested as rapidly as possible by appropriate remedies. In the form in which it generally occurs, simple astringent injections will, in most instances, be sufficient.

The plan of treatment thus suggested will be found to be rapidly successful in the majority of cases in which there are not any objective symptoms, such as discoloration of the iris, &c. But where such symptoms are present, or, in their absence, where no improvement is evident after a few days' trial of this method, it will be necessary to give mercury. Too much caution, however, cannot be observed in using this powerful remedy; as the debilitated condition of the patient, and the impoverished state of the blood, seem to render the system peculiarly susceptible to its poisonous and depressing effects; and if such are allowed to take place, much injury will be the result. The safest plan is to select the mercurial which is considered as mildest in its effects, and to give it in frequent and very small doses, carefully watching the condition of the gums, and suspending or diminishing the dose as soon as they present the appearance characteristic of its constitutional action. Beyond the faintest indication of such action, I do not believe it is desirable or even safe to go; ulceration of the gums, hyperæmia of the salivary glands, or profuse salivation, cannot be expected to work out any good result in patients already deficient in red blood. And bearing in mind this deficiency, the administration of mercury should not be allowed to interfere with the vigorous prosecution of the tonic plan already commenced, and especially with the use of iron, in every instance in which it can be borne.

I have never applied leeches or blisters in such cases, and have never had cause to regret the omission, as the patients have recovered perfectly without them, and their pallid appearance has always appeared to indicate the necessity for the increase, not for the diminution of the quantity of blood in the system. Nor can local applications, in the form of lotions, be expected to be of advantage in a disease of purely constitutional origin, except in those cases where there is evident congestion of the conjunctiva, when some weak astringent collyrium may be used, or in those in which the iris is implicated, in which belladonna will be of service in preventing new adhesions to the capsule of the lens, and in relieving pain, if such be present.—*Medical Times and Gaz., July* 7, 1855, p. 6.

120.—OPERATION WITH THE GALVANO-CAUSTIC IN URETHRO-VAGINAL FISTULA.

By JAMES PAGET, Esq., Surgeon to St. Bartholomew's Hospital.

[This is a case of no little interest as showing the beautiful application of electricity in surgery. The woman appeared about thirty years of age, was healthy, had never been married, but was the subject of an old-standing troublesome fistula between the vagina and urethra. Several modes of cure had been tried at various hospitals with doubtful success: accordingly, as the only resource left, on May 18th Mr. Paget proceeded to try the galvanic cautery.]

We lately spoke of the useful application of the actual cautery in hemorrhage after lithotomy, and in chronic synovitis. Every one, however, must have observed the clumsiness and hurry with which the red-hot irons are taken out of a smoking brazier, and the horror they create in the patient's mind. The galvano-caustic, on the other hand, requires no fire, no smoke, &c.; the essential part of the apparatus, not unlike a glazier's diamond, or ordinary caustic-case, with two wires run through it, may be carried in a pocket-case. When in action, it applies a little coil of platinum, twisted round a bead of glass or porcelain, about the size of a small pea, and of a white heat, to any part or for any length of time that may be necessary. In the present case the effect was almost like magic, as the incandescent little pea of fire, in an instant, within the speculum vaginæ, quite lighted up the entire class and bed-curtains, and showed the amount or extent of disease almost as in a diagram. The plan of action, to which we would revert for a moment, was very simple. An ordinary battery, of half-a-dozen plates, is placed on a chair at the side of the bed; the two wires, one attached, the other may be in the operator's hand, are next arranged; the second wire only requiring to be pushed into a hole at the opposite end of the battery, by the left hand, for the operator to have in his right hand this little ball of fire at a white heat. The woman was next placed on her hands and knees in bed, without any exposure; the speculum was introduced, when the rent or fistulous opening was at once seen, about half an inch in extent. The circle of the battery being now completed, the coil or little bead of platinum, at once shone with almost too much light, reflected as it was from the glass and silver of the speculum. Mr. Paget carefully pencilled the edges of the fistula with this new, and, we think, improved actual cautery, as if it were nitrate of silver scraped to a point. The woman, strange to say, did not feel the least pain—a peculiarity, it is said, of the "white" heat, as contradistinguished from that of a lower or red heat. She did not require chloroform; and after the operation seemed as if nothing had been done to her. We mention these particulars as such an improvement as the galvano-caustic on the old red-irons cannot fail to be of use in burning out the seeds of cancer after removing a cancerous tumour, or in destroying, even to the minutest point or speck, the various morbid growths for which the actual cautery is generally used.

21st.—On visiting this woman to-day, she expressed herself quite a new being, as she can now retain her urine treble the time she did formerly. It is too early, however, to form an opinion, as the mere swelling of the parts would lead to a temporary closing up of the orifice.

23rd.—Marks of improvement are beginning to be quite perceptible in the woman's countenance. She states that she has not been so well for "years and years."

June 4th.—Mr. Paget seems quite satisfied with the good result of the operation. The case itself is one almost unique, as a fistula occurring between the urethra and vagina, in an unmarried woman. The operation will have, probably, to be repeated this week and next, as the chief difficulty in such cases usually occurs in closing up the last point of the fistulous opening. The remedy has been interesting as a galvanic experiment, free from pain, and ultimately effectual after other operative proceedings had failed.—*Lancet, June* 9, 1855, *p.* 584.

121.—*Ergot of Rye replaced by Uva Ursi.*—Mr. HARRIS, in the 'Virginia *Medical Journal*,' relates cases in which he has employed a strong decoction of uva

ursi in accouchements, where the ergot of rye would ordinarily have been employed, and found its employment followed by vigorous pains, which soon caused the expulsion of both fœtus and placenta. Mr. Harris prefers this medicine to ergot of rye, inasmuch as it does not cause such strong contractions as the latter, which are so very painful to the mother and dangerous to the child.—*Dublin Hospital Gazette, Feb.* 1, 1855, *p.* 14.

122.—*Ergot of Wheat.*—Dr. JOBERT makes the following statement, as the results of his observations. 1. The medical and obstetrical properties of this ergot are as incontestable as those of the ergot of rye, and its effects are as prompt, as direct, and as great. 2. Its hæmostatic action appears certain. Dr. Jobert has administered it several times, against abundant discharges of blood, and immediately after labour it has almost constantly and fully succeeded. 3. In the dose of from one to two *grammes* (fifteen to thirty grains), according to urgency, in cases of uterine hemorrhage during any period of pregnancy, it has frequently succeeded in lessening, if not in completely arresting, the hemorrhage, and this without appearing to produce any stimulant action on the uterus.—*Gaz. des Hôp. —Asso. Med. Journal, Oct.* 5, 1855, *p.* 915.

123.—*Mechanical Support in Cases of Pendulous Abdomen.*—There are certain cases of enlarged and pendulous abdomen which, when they occur in women, often excite suspicions either of pregnancy or ovarian disease. Their true pathological nature we once heard pointedly indicated by a Borough obstetrician in three words—"fat, fæces, flatus." Every one of experience will recognise the condition we refer to, the subjects of which are usually stout phlegmatic women, liable to flatulence and intestinal torpidity. The state is one often found difficult of relief. We observe that Dr. West, at St. Bartholomew's Hospital, insists strongly upon the benefits derivable from affording to the bowels mechanical support. By the use of an abdominal bandage, applied as tightly as it can well be borne, the symptoms often disappear very quickly, and a patient whom nothing could convince that she was not either pregnant or dropsical, may have at once her hopes dissipated and her fears dispelled. The use of tonics and mild purgatives (*e. g.* aloes) at the same time is of course advisable. Dr. West often employs frictions with tincture of aloes over the abdomen, with the object of restoring tone to the muscles of the abdominal wall and the intestines. We believe, however, that he considers mechanical support as the most important part of the plan.—*Med. Times & Gazette, July* 21, 1855, *p.* 63.

124.—EFFECTS OF THE BATHS OF KREUZNACH IN DISEASES OF FEMALES.

It has recently become fashionable with English physicians to send ladies affected with uterine and other diseases to the baths of Kreuznach. In many cases, no good can be hoped for; and in many the obstinacy of the disease has been increased by insufficient treatment. To prevent patients from being sent improperly, Dr. Engelmann, a physician resident at Kreuznach, has communicated to the 'Monthly Journal of Medicine,' for June, 1855, a paper, of which the following are the leading points.

The efficacy of the Kreuznach baths is mainly to be ascribed to the combination of muriate of lime, bromine, and iodine; and hence it will be more especially manifested in those cases in which hypertrophic enlargement or soluble tumours exist, in which cases the grand object is to induce absorption of the tumour by increasing the activity of the absorbent vessels.

Dr. Engelmann examines the uses of these baths in diseases of the mamma, affections of the ovaria, and affections of the uterus.

1 *Diseases of the Mamma.*—It is only non-malignant tumours that can be dis-

persed under the use of the Kreuznach waters. At the same time, it must be remembered that it is not *every* kind of non-malignant tumour which is curable by these waters, but only such as come under the following classes:—

(*a*) *Induration of Particular Glands*, arising from inflammation of the breast during lactation or at the time of weaning, or produced by hyperæmia, by mechanical injury, or by cold or anomalous menstruation.

(*b*) *Glandular Hypertrophy* (pancreatic sarcoma of Abernethy, lobular imperfect hypertrophy of Birkett, mammary glandular tumour of Paget). The success of the bathing course depends rather on the previous duration than on the size of the tumour, being most rapid when the tumour is recent. In cases which have come under Dr. Engelmann's observation, after several years, he has perceived no tendency to a fresh growth.

(*c*) *Ectasia or Distension of the Milk-Vessels* is less frequently met with. In all cases which have come under Dr. Engelmann's observation, the tumours had lasted several years; they were always decreased by the use of the baths, and in some cases totally dispersed.

The tumours which cannot be absorbed by the use of the Kreuznach baths, but which otherwise derive benefit from their employment, are (*a*) sarcoma and cysto-sarcoma of the breast, and simple cysts and cystoids of the same; and (*b*) scirrhous tumours. In these, the size of the tumour is diminished by *absorption of the hypertrophied cellular tissue*, while the disease itself remains unaffected. In cases of sarcomatous and cystic tumours which were operated on after the use of the baths, Dr. Engelmann saw no cases of relapse in those which subsequently came under his notice; and of the scirrhous tumours, those which were removed when small, and had not grown to the skin, nor produced constitutional affection, did not return. But in all cases where the disease had shown none of the well-known characters of malignancy, it always returned after the operation.

When scirrhus has passed into cancer, the use of the Kreuznach waters is injurious. During their use, indeed, there is an apparent amendment; but, when the treatment has terminated, the development of the cancer is more rapid than before, and even sometimes during the treatment, if the baths are more strong.

2. *Affection of the Ovaria.*—The use of the Kreuznach baths is highly pernicious in ovarian cancer, or where there is great exhaustion and hectic fever. In *cysts* of the ovaria, simple *hydrops ovaria* and the *cystoids*, *cystosarcomatous concretions*, and *alveolar degeneration* of the ovaria, a moderate use of the baths is not directly injurious, but is still unsuitable. Patients with these diseases are repeatedly sent to Kreuznach; but in none of these cases has Dr. Engelmann perceived any benefit (but, sometimes on the contrary, injury) from the use of the baths, when dropsy has appeared.

The water treatment was attended with benefit only in *solid ovarian tumours* arising from real hypertrophy or effusion of blood, or fibrous tumours without hydræmia, or more constitutional disturbance than could be accounted for by the pressure of the tumour. In carcinoma, the baths will be even injurious; and no good result can be expected in the cases of sarcomatous cysts, with or without bones and hair.

3. *Affections of the Uterus.*—The affections of the uterus which can be efficaciously treated by the Kreuznach waters are *chronic engorgements and indurations of a benignant character*, generally affecting the os uteri, and more rarely the fundus uteri in the entire organ; and *hypertrophy of the uterus*, produced by constant pressure of fibrous tumours. The latter class has comprised the greatest number of uterine affections successfully treated by the Kreuznach waters. The fibrous tumours appeared in various parts of the uterus from within outwards; submucous fibroids were less frequent; and Dr. Engelmann never met with fibrous tumours on the os uteri. *Idiopathic chronic engorgements* of the uterus, from their tendency to congestion, do not admit the use of such strong baths as fibrous tumours. Cases of *polypus* have been mistaken for mucous fibroids, and sent to Kreuznach. The diagnosis, though important, is sometimes difficult. In some cases, during the course of the baths, the polypus has passed through the os uteri. A polypus cannot be absorbed by any means; and the use of the baths is not only a loss of time, but may produce injurious effects on the constitution. There is no doubt, according to Dr. Engelmann, that fibrous tumours can be absorbed, when

not entirely of a cartilaginous structure. The diminution sometimes commences in the fibroid itself, when not too solid; and sometimes in the hypertrophied tissue of the uterus. Sometimes the growth of the tumour is merely arrested, and diminution does not begin till after the lapse of some years, on the patient arriving at the climacteric period of life. Tumours of the fundus uteri, which were diminished by the use of the waters, began towards the end of the course to swell, and became softer: in some patients, where submucous fibroid was presumed to exist, a discharge of serous fluid, accompanied with many flakes, appeared during the course.

In affections of this kind, the addition of mother-lye was in proportion to the development of the disease and the constitution of the patient. In some cases, the baths at last contained, in 400 pints of plain mineral water, 23 pounds of muriate of lime, and more than 11 ounces of chloride of sodium. When the constitution is weakened by accidental complaints, the wished for result must be endeavoured to be attained rather by a prolonged use of the baths than by giving too much strength to them. Exhaustion produced by anæmia, in cases of submucous fibroids, does not necessitate the use of weaker baths. Hemorrhage will only be promoted when the baths are too strong or too warm; if the temperature is above 92 Fahr., either hemorrhage will occur while the patient is in the bath, or menstruation will come on sooner, and be more copious.—*Dublin Hosp. Gazette, June* 15, 1855, *p.* 159.

125.—*A New Hysterotome.*—[Dr. Routh exhibited this to the Medical Society of London.]

It had been manufactured for him by Mr. Maddox, of University street. The simplest idea he could give of its construction was that of a pair of scissors bent upwards between two blades of steel united at both ends. The instrument could be graduated beforehand, as to the extent to which it was to be opened, by graduated screws on either side of the handles. The curve of the instrument was the same as that of Simpson's sound. The length of it, from the joint to its anterior end, was eight inches and a half; the length of the blade eight inches; the length of the handles was four inches and a half, supported by springs, so that the anterior blades were always closed, unless the handles were forcibly compressed. The cutting edge of the blade did not extend to beyond one inch and a half from their tip. There was a peculiarity about these tips, which were made sharp at their anterior aspect, so that in the event of a stricture being so small that the instrument could not penetrate, these blades being made to open to the extent of about a line on each side, the instrument could be made to work its way upwards by gentle pressure in that direction, and by a slight lateral movement from side to side. The instrument was used on the same principle as Simpson's hysterotome. The extent to which the os was to be cut having been first marked out by the screws before alluded to on the handle, the point of the instrument was introduced through the os to the extent required, the handles were then compressed, which caused the two blades at the anterior end to open, and, being kept in that position, the instrument was withdrawn, and in this manner the stricture cut through. This instrument, it would be seen, was new, in as far as the curve of Simpson's sound was applied to it, thus facilitating its insertion. In some respects it resembled Dupuytren's double bistoury caché. The presence, however, of the curve rendered its application in uterine disease more easy. It might also be used for stricture of the urethra in males, and, indeed, by some very slight modifications, it might be rendered useful for operating in lithotomy.—*Lancet, June* 16, 1855, *p.* 610.

126.—*Tincture of Benzoin in Chapped Nipples.*—M. Bourdel states this is the best application, whatever the extent or duration of the fissure may be. After suckling, it should be freely applied with a pencil. The first application causes a burning pain for a quarter of an hour, which, however, is usually bearable, and future applications give relief instead of pain. It need not be wiped off before the infant sucks.—*Journal de Chimie Médicale.—Med. Times and Gazette, Oct.* 6, 1855, *p.* 351.

MISCELLANEOUS SUBJECTS.

127.—LIVING STREAMS, OR ILLUSTRATIONS OF THE HISTORY OF THE BLOOD.

By Dr. James Paxton.

[It is by means of the blood that every power which constitutes vitality is originated, completed, and controlled; hence the necessity of maintaining its normal condition. Frequently the first impression of the nature of a disease is derived from the colour of the blood displayed in the integuments, as in anemia, cancer, &c. "Every disease is a local expression of alteration of the blood," therefore a knowledge of the hæmatic system becomes a key to an intimate knowledge of the disease. The blood is a living fluid, consisting of innumerable independent cell beings, existing in an albuminous fluid; some of these are red, others opal white, while a third series are perfectly colourless. All are endued with an executive power, and each cell individually and corporately pursues a certain path to the attainment of a certain end. The development of the blood is four-fold, and comprehends—1. The Chylid; 2. The Hæmatid; 3. The Lymphid; 4. The Liquor-sanguinis.

1. *The Chylid.* It is found in the thoracic duct and receptaculum chyli, floating in the liquor chyli. The chylids vary in size and tint, and are sometimes twice as large as the blood corpuscle. It has been supposed that the change into a blood corpuscle might take place in the receptaculum chyli; but this is of rare occurrence. The cell contains a nucleus, which has been supposed to be the ovum or germ, but it is by the quickening of the chylids that the hæmatids are brought into existence as infusorial animated organisms, a peculiar species of *protozoa*, which possess the faculty of spontaneous vesicular motion, independent of the aid of the heart. In plants, as well as in animals, there is a power distinct from the vis a tergo, by which the blood corpuscles and sap-globules traverse their respective vessels, for the hæmatic movements have been observed in the mammalia to commence before the development of either heart or vessels. How can we account for this, and also for the progression of the lymph and chyle in their vessels, unless we admit, that these bodies manifest animalcular powers capable of producing change of place. Muller thought that the change in tint might be from red particles regurgitated from the venous trunk into the thoracic duct. However this may be, the chylids are converted by some unknown process into hæmatids, the quantity and quality of which will depend upon the age, nutrition, and food of the animal. The liquor chyli, entirely unchanged, supplies the waste of the liquor sanguinis.

2. *The Hæmatids.* In man they are biconcave, and occasionally double convex. Diseases, as we shall presently see, greatly alter their figure. They vary in size in the same individual. They are larger in the fœtus than in the adult, one cubic inch contains 126,976 millions of them. These are animals whose simple structure is reduced to a single cell, but possessing all the characteristics of living animalcules.

3. *The Lymphids.* When the chylids are introduced into the vena cava, if the constitution be weak, some remain to all appearance the same, and are called lymphids—pale blood-cells. Their vital powers are of an inferior order. They are colourless vesicles containing several nuclei: they abound in chlorotic and cachectic persons, and constitute a morbid affection, called by Dr. Hughes Bennett, leucocythæmia. Addison says that pus globules, exudation cells, and epithelium originate from them. They are partly appropriated to the repairs of organic waste, and *become incorporated with* the tissues of the system.

4. *The Liquor Sanguinis.* This cannot be considered vital. It is the fluid in which the hæmatids and lymphids live, move, and exist. Continually replenished by liquor chyli, it furnishes food to living hæmatids, in every stage of their existence. It is the blastema and pabulum of organization from whence all organizable material is derived.

The Respiration of the Blood. If deprived of pure air, the hæmatids fail in their energies. The inspiration of noxious gases, such as carbonic acid gas, &c., has the most serious effect on the hæmatids, in fact they are suddenly asphyxiated. By sleeping in ill-ventilated rooms, the hæmatids become enfeebled, and their executive power diminished; the same in some diseases—the hæmatids become oppressed by the carbon which ought to be extricated; hence coma supervenes, and the patient dies literally "poisoned by his own blood."

The Effects of Poisons on the Blood.—Blood acted on by chloroform, shows the gradual solution of the cell-wall of the hæmatid. The poison from the bite of snakes renders the blood very fluid: it has no tendency to congulate. The virus mixing with the liquor sanguinis, is quite sufficient to destroy the whole community of hæmatids. All poisons affect the hæmatid vitality, some chemically, some by paralyzing, others by asphyxiating them.

In purpura and scorbutus there is an evident disintegration of blood, innumerable hæmatids perish and become effused into the tissues. Under the microscope the globules were changed from a flattened to a spherical form. The liquor sanguinis contained a solution of hæmatin.]

Condition of the Blood in Fever.—The blood in fever is deserving of particular attention. It is more than probable that the cause of fevers is owing to some poison gaining access to the liquor sanguinis. Dr. Alison considers the blood as "not simply changed in its chemical constitution, but in its vital qualities by which that constitution is regulated and maintained." Whatever be the mode in which the morbific cause of idiopathic fever affects the circulation, it is to the direct action of this cause, and not to the diseased action excited locally, that we must ascribe the enfeebled state of the circulation, the peculiar vitiated condition of the secretions, and the derangement of the nervous system. Indeed most fevers must be ascribed to morbid alterations in the structure and composition of the blood. With respect to the state of the liquor sanguinis, in this, as well as in most other diseases, it is liable to great variations, corruptions, and deficiencies. While passing through the lungs, the blood may be exposed to malaria, or suffer from the reception of infectious exanthemata. The liquor sanguinis probably is the vehicle which conveys the poison to the hæmatids.

One of the most frequent symptoms of fever is red-coloured urine—it is the result of a dissolution of vast numbers of hæmatids. In the ulterior stages, hæmatin is deposited beneath the epidermis in violet or livid spots. In yellow fever the hæmatids perish, and escaping into the stomach are exposed to the action of the gastric juice, are decomposed and rejected by vomitings. This is the well-known "black vomit," always indicating a fatal termination. An attack of this disease invariably deprives sanguineous protozoa of life. "The appearance of the blood is always thin and black, and there is hemorrhagic lesion of the mucous and submucous tissues of the alimentary canal." "In serious cases," says Dr. Stevens, "we find in place of blood, a fluid black as ink, obviously unfitted to perform the offices of the circulation." Often death ensues from copious hemorrhagic dejections. There is no author, ancient or modern, except Cullen and the solidists, who has not described fever as consequent on a vitiated or abnormal condition of the blood. As, "blood-globules loosely compacted, serum watery and vapid, so that from this pituitous state, all the secretions are imperfect or insufficiently participant of an animal nature. The bile becomes inert, the animal spirits flat and deficient, the saliva a mere insipid mucus," and so on. The above is quoted from "Huxham's Essay on Fever." He concludes this passage by saying—"The slimy lentor of the blood stagnates up to the heart," &c. The signification of these, and more modern, and somewhat less incorrect representations of the doctrines of fever, according to our views, may be explained in the following order. 1. The poison of fever deprives a certain portion of the hæmatids of life. 2. The dead exercise a pernicious effect on the living, by impeding their progress through the vessels. 3. In a short time the former undergo decomposition, act as a deleterious

substance, which, so long as it remains, greatly incommodes the sanguineous transit. "Pulsus parvus, debilis plurumque frequens; urina parum mutata; sensorii functiones plurimum turbatæ; vires multum imminutæ," describes the result. 4. The liquor sanguinis, now containing the debris of hæmatids, which have probably acquired new chemical characters, is oppressive to the system, and for the nutrition of the organisms useless.

We are sure that in typhus fever some peculiar matter, generally an animal effluvia, has been absorbed, and has made an impression on the blood. In fever arising from malaria the morbid poison has been received through the lungs, and it is supposed to be multiplied in the blood. In a majority of cases of malignant fever, "there is a materies morbi evolved from the blood making the disease contagious." The mode of propagation through the mass of blood is by the results of its decomposition. And so long as the effects of the poison remain in the vascular system, that is if any quantity, even the least quantity of dead matter remains, it interferes with the functions of the living protozoa, by impeding the course and regular operation of these vital powers. Under such circumstances the formation of chylids fails, and the number of hæmatids is speedily diminished. Dr. Watson justly observes—"That all analogy is in favour of the belief, that in fever the primary change is in the blood itself, and through its intervention on the brain and organic functions." As the blood is the source from whence all the organic powers are derived and from which every secretion originates, so these functions are healthy in proportion to the healthy condition of the blood. Have we not in cases of typhoid fever perceived an extraordinary fœtor in the perspiration and other evacuations? and are not the attendants powerfully affected by it? These effects can only be accounted for by morbid evaporation and decomposition of a certain portion of the tissues dissolved in the blood, the component parts of which have entered into combinations injurious to the hæmatic corpuscles. At the commencement of typhus the hæmatic animalcules are partially paralyzed—incapable of their work or of communicating energy to the nervous centres. Hence this disease occasions an overpowering lassitude and mental dulness. And we scarcely can doubt that the attack has been detrimental, chiefly, to the hæmatids. Their dissolution in the watery part of the liquor sanguinis is disposed of by the kidneys, and may be detected in the urine, "the colouring matter of which is a decomposition and solution of blood-discs." The disorganized hæmatids are said, by Vogel and Nasse, to leave the body by no other channel than the urinary organs. It therefore follows that we possess in the colour of the urine the ready means of ascertaining, in a given time, whether a large or small quantity of hæmatids are decomposed in the animal economy. In the normal condition two parts to the six of colouring matter are voided, and this expresses the normal loss and reproduction of hæmatids. A chlorotic patient or an invalid who passes little colouring matter in the urine would have little change and reproduction of these bodies. Every one whose urine is high coloured would require a constant supply of hæmatids to recruit the loss. The grounds on which this hypothesis rests, are the following: "In all cases where there is a discharge of red urine, with increase of colouring matter, as in fever and inflammation—there we observe, as a common result, a decrease of the blood-corpuscles and a corresponding anæmia. But where there is noticed diminished production of these corpuscles, with very sparing disintegration, as in cases of debility, there we find little excretion of the colouring matter in the urine."

Effusions in the form of vibices and petechiæ, from the latter feature of the disease, obtained the name of *petechial fever*. The cases in fever hospitals are almost invariably distinguished by this characteristic of hemorrhagic diathesis. When the spots assume a livid, black, or greenish colour, we may predict the near approach of a fatal termination. But signs of exudation are not confined to the surface of the body, the mucous and serous membranes of the internal organs are marked by similar deposits. Now as it cannot be doubted that the remote cause of fever is the reception of a specific poison into the circulation, neither can we doubt of the immediate cause being its pernicious effects on the protozoa of the circulation, when applied through the intervention of the liquor sanguinis to those *living organisms.* According to the intensity of the poison is the rapidity of their *destruction. The dead* hæmatids impede the operations of the living community,

contaminate the fluid of the vessels, and in a great degree suspend every performance of the vital phenomena. Liebig as a chemist thought the perceptible effects of febrile poison were analogous to fermentation. It is an apt comparison, but the pathologist is compelled to take a different view of the question.

There are other modes by which hæmatid structures may suffer and die, thereby producing symptoms resembling those which occur in typhus. On the failure of the potatoe crop in Ireland, in 1847, thousands of the poor were deprived of their accustomed food, and in consequence a disease called *famine fever* was produced. The great mortality of that period may be pathologically ascribed to a want of organic materials for the production of chyle and chylids, the sources from which hæmatids originate and are supported. The subsequent stages in the progress of this affection are, that owing to insufficient blastema (liquor sanguinis) numbers of hæmatids perish, and they fall into a state of decomposition. As this change takes place, the materies morbi is fully developed and typhus established in the system. The death and putrefactive decomposition of hæmatids constitute the essence of typhoid fever. Some of the new products which are formed in fever pass away in a liquid state by the skin or kidneys, and by natural evacuations, other matters are volatilized and escape in a gaseous form from the body. And we are warranted in assuming that the miasma of infection is contained in the gaseous compounds which are expelled from the lungs of the sick, or are voided from other organs.

The development of the material of contagion in such a state of things is not dissimilar to the generation of malarious gases, which, under certain conditions, arise from the decomposition of organic remains in confined and unhealthy buildings or over-built towns. Persons in general are unconscious of the value of atmospheric purity; without this essential condition, the hæmatids are deficient in vigorous growth, and there is a low standard of health.

Whether the access of the materies morbi acts immediately on the hæmatids on its first reception, or by means of the liquor sanguinis, in which they are immersed, remains undecided. By whatever means the blood suffers from febrile or other poisons, the injuries inflicted on the sanguineous protozoa are the sole cause of every distressing symptom we are called to witness.

In fevers assuming the typhoid type the physical elements of the hæmatids combine with the secretions, and are evident, not only in the urine, but the dark fur on the tongue, and the sordes on the teeth, are occasioned by disintegrated hæmatids collected in the mucus of those parts which are coloured by the hæmatin of these bodies.

Abundant manifestations of the pernicious effects on the hæmatids occur in plague, by infiltration of their elements in the cellular tissue in large blue or purple spots (maculæ nigræ of Dr. Russell) on the body and limbs. From the same cause carbuncles commence as vesications, filled with dark fluid indicating a disruption and death of the blood. Hence Hecker is correct in maintaining that the plague is owing to a decomposition of the blood. Almost every one attacked with this species of fever becomes "a mass of putrefaction covered by vibices and gangrene." When this disease appeared in Germany and the northern kingdoms, in the middle ages, it was called the *black death*.

The Effects of Cholera on the Blood.—There is a peculiar affection of the blood in malignant cholera, by which the nervous system and the whole vital functions of the body are, in a greater or less degree, deranged or entirely suspended. During an attack of this disease the hæmatic life is so enfeebled that it can no longer appropriate to its use the materials of the liquor sanguinis. Therefore the water, the fibrin, the albumen, and the salts contained in the circulation escape from its current, leaving the hæmatid structures deprived of vitality. My friend Mr. Field, of St. George's Hospital, in 1854, found the blood nearly uncoagulated and almost the consistence of soft butter. Under the microscope he observed a large quantity of epithelium, oil globules, and colourless corpuscles, besides crystals of triple phosphate. The ordinary hæmatids had the outline altered, their structures were corrugated or ragged, as if corroded.

The experiments of Drs. Garrod and Parkes in this disease, were numerous, and conducted with much accuracy. An analysis of the blood shows the amount of solid constituents was 256 to 257 in 1000; while in the healthy standard there

were 200 in 1000. The draining away of the watery parts was certainly the main phenomenon. So much of the colourless matters having been expelled, leaves solely black tenacious blood totally unsuited for transmission through the pulmonary vessels. In many of the worst cases the cutaneous exudation is greatly increased, a watery fluid being poured out by the whole surface of the skin as well as by the mucous membrane of the intestines. This disintegration by which the fibrin, albumen, salts, and the water were spasmodically excluded, constituted a marked feature of the disease. It was undoubtedly the cause of the coldness of the body. We have considered that the thickness of the blood, owing to a loss of water and salts, is sufficient to account for its arrest in the capillary system. "An essential condition for the normal process of nutrition and the chemical process of respiration on which the temperature of the body is dependent, seems to be a certain portion of water in the blood." Mr. Grainger has described cholera as a disease of the blood. The results also which have been obtained by continental pathologists have been the same, namely, that the first impression is aërial, acting as a poison on the blood. Every one might have observed, at the first glance, this extraordinary condition. Very recently it has been submitted to a closer examination, and red irregular oviform bodies were discovered in considerable numbers. It is well known that the "qualitative and quantitative condition of the blood is in an abnormal state." A shrivelling of the hæmatids has been noticed by others. Post-mortem inspections have revealed a morbid structural alteration in their form. Examined by the microscope they were scarcely recognisable as such. Some were granular in their general aspect, others were transformed into free epithelial nuclei. In many, a delicate cell-wall was developed in such a direction round a nucleus as to give a caudate appearance to the cell. A few were irregular in their shape, and more resembled the bodies usually figured as tubercle corpuscles. The following particulars are deserving of notice.

a. Granularity or haziness of the hæmatids.

b. Peculiarity of their reaction with acetic acid, in acquiring the appearance of pus globules.

c. Irregularities in their tendency to aggregate into rouloux.

d. Excess of lymphids, chiefly in anæmia patients.

The chemical changes also have met with some attention, but of themselves are insufficient to account for the symptoms in any of the stages. The mere chemical elements of blood vary in their quantities, within certain limits, with our meat, drink, and habits of life. It is probable that we might approach nearer to the solution of a difficult question—the proximate cause of disease—by a more extended research into the structural organisms of the blood. The illustration just cited, is an advance in the inquiry, if not fully a confirmation of such an opinion. We may be assured that no morbid affection, whether local or constitutional, can exist without a previous derangement of the blood. In restoration likewise to a sanitary standard may be traced the wonderful powers of the hæmatids in repairing deficiencies and recruiting losses occasioned by the injurious operation of morbid attacks on sanguineous vitality. At present the few examples here selected may serve as a clue to further enquiry.

The Blood in Tuberculosis.—In consumption Ancel describes the hæmatids "deficient in numbers and defective in vital properties." And it is always found, that with a decrease there is a corresponding decrease of strength in the patient. Andral found the blood, in this disease, in no one instance, as reaching the physiological average of health. The appearance of the blood, in consumptive and scrofulous patients, is roseate, the colouring matter being extravasated and separated from the hæmatids. The liquor sanguinis and these bodies, in many cases, have assumed the same tint. Spheroidal and lenticular corpuscles are constantly found in these affections. So manifestly are they altered, that their figures are represented as "irregularly circular, or elongated, or notched."

The Blood in Local Inflammation.—At the commencement of inflammation, "the current oscillates in the capillaries, and then ceases to flow. That is—1. The blood flows with a greater rapidity. 2. The vessels become enlarged and the current is slower. 3. The flowing is irregular, that is, it flows backwards and forwards—sometimes stops for a period and then resumes its course. 4. All *motion of the blood* ceases and the vessels are distended. 5. Lastly, the liquor

sanguinis, and sometimes the red corpuscles, exude through the vessels." Such is an accurate account of the progress of inflammation, attended with exudation. According to the present theory it admits of the following explanation. 1. Some injury having been inflicted from within or without, which causes excitement of the hæmatic beings, an effort follows which is communicated to the nerves and vessels. 2. This excitation or exertion, as with all other animated nature, is succeeded by exhaustion of animal power. 3. There is partial interruption or suspension of their usual functions. 4. A number of the hæmatids are deprived of motion. 5. The vessels lose their vital tone and yield to the pressure of accumulated blood. 6. There is exosmose of the liquor sanguinis and sometimes of the hæmatin. These are the stages in the rise and progress of inflammatory action and deposits.

To the preceding might be added the physical alterations of the blood in many other affections; even in mental weakness a similar condition presents itself, indicating the relation between the sanguineous and nervous functions. If the hæmatids are abnormal the brain is liable to receive false impressions. The blood of upwards of 2000 patients in the Crichton Royal Institution for the Insane, has been submitted to microscopical examination, and the hæmatid deformities or "blood changes" in these cases are deserving the attention of pathologists. Dr. Lindsey has published his investigations, and these changes are fully described by himself.

Illustrations of the theory of hæmatism might be multiplied, but we trust sufficient has been exhibited to lead to the inference, that the blood-cells are organized sensitive beings endowed with the properties which characterize animal life. By means of these the special tissues receive power to elaborate the secretions, and carry out the requirements of the animal economy. It is acknowledged that this outline of hæmatism is very imperfect, yet we trust it will serve as an introduction to further inquiry, and at least to exemplify the nature of the living principle.

Life was supposed to be the "breath," yet this is only one of the manifestations of vitality. The ordinary and more intelligible notion is, "an active state of organic structure;" this is another manifestation. But life is one thing and the mode of its exercise is another. The latter has been a subject of as much controversy among physiologists as the former; for wherever life exists the next enquiry is, how and by what means it is exercised? The history of hæmatism must furnish a reply. ' In all our practical investigations we are enabled to learn that the blood has the sole dominion over every animal organization. The phenomena of nervous sensation, glandular secretion, and muscular motion, may be regarded as various modes by which the hæmatid functions are displayed in their influences and control over each organ of the body. That the blood is the executive of the living animal there is accumulated evidence. 1. By the abstraction of blood producing a corresponding abstraction of vital energy. 2. Tying the artery of a limb limits its power, so far as it cuts off the supply of blood; and a normal vigour is not regained until its usual quantity is restored by collateral channels. 3. Plethora consists in an excess of hæmatids, and consequently an inconvenient crowding of the vessels. 4. The opposite condition is anæmia, denoting a deficiency of hæmatids. 5. Mental or physical causes, which disturb the circulation of the blood, immediately influence the whole vital economy. 6. Those parts which are invested with great sensitiveness, as the lips, the tongue, and some of the mucous membranes, are exceedingly vascular and obviously abound with hæmatids. On the contrary, where the structure of parts, as the tendons, the cartilages, and the cornea contain no hæmatids, then are they destitute of vital sensibility. But no sooner are these textures, by disease, rendered vascular, than they become sensitively painful. Life therefore might be expressed by the word hæmatism. It has been the object of this essay to illustrate its manifestations under various circumstances, which occur in the hæmatic sphere of action. Moreover, if the animalcular theory of the blood be true, and if vital energy centres solely in the hæmatids, it is no longer a doubtful question. What is the nature and constitution of the erroneous term *living fluid*? The hæmatic protozoa which inhabit the vessels are the only portion of the blood endowed with the attributes of life.

We close this outline of the natural history of the blood, regarding it as a column of active instinctive beings in every artery and vein. Continually, in

transitu, by a branching and tortuous route, they reach all parts of the system. And all service is derived from these organisms,—strength and weakness may be measured by the number supplied to the muscles and nerves. The hæmatids possess the necessary qualities for the administration of the powers requisite for every portion of the organic apparatus of the animal structure and for the accomplishment of every function.—"*Living Streams*," *p.* 30.

128.—ON DISEASE IN GENERAL, AND ON PATHOLOGY IN PARTICULAR.

By I. Harrison, Esq., Reading.

(Read before the Reading Pathological Society.)

[During an epidemic of small-pox, scarlatina, and measles, the author was led by a long series of reflections on disease and its causes to support the doctrine of the humoral pathology. The following remarks are to demonstrate its truth, and to show, also, that there is a greater unity in diseases, their causes, and their treatment, than is generally suspected.]

Small-pox was very prevalent, attacking many after vaccination; measles were also prevalent, and scarlatina less so.

In Mr. F., 45 years of age, vaccinated, it was impossible to distinguish the rash on the body from measles, and the face only showed pustules. In Mrs. C., her body was covered with a rash like measles; and she had not half a dozen pustules over her whole body. Miss M.'s man servant, 30 years of age, had the same appearances exactly. Mrs. W.'s child, 2 years of age, had been vaccinated; it took well. The sister-in-law, in the same house, had small-pox severely after vaccination. The child had a rash over the whole body, precisely similar to scarlatina in all its signs and symptoms. The father had small-pox, secondary. The mother had pains in her limbs, head, &c., but *no rash*. Mrs. A.'s children had measles, and after nursing them, the mother had scarlatina. Two of Mrs. C.'s children had scarlatina, and then measles immediately after. The others had the measles only. One of Mrs. W.'s children had, after vaccination, chicken-pox very severely. When the rash was fully out, I vaccinated the infant. The vaccination took well; but on the fourteenth day, the child was covered with the eruption of chicken-pox, with six or eight well marked pustules of small-pox. I vaccinated Mrs. C.'s child, 2 years of age. On the tenth day, it was attacked with measles. I re-vaccinated Mrs. A.'s child, 2 years of age; it took well. On the tenth day it was attacked with scarlatina.

These occurrences must be familiar to all practitioners. I will adduce, however, a few authorities.

Diemerbroeck says, "On the seventh day, contrary to all expectation, the measles come out over the whole body, between the small-pox." He adds, "I do not remember I ever saw this accident above twice or thrice in all my practice. However, by this observation it appears, that although both these diseases, in respect of infection, have somewhat in common, yet in respect of the subject to which that infection adheres, there is something of difference and distinction between them." (Small-Pox, p. 39.)

Dr. F. Churchill, in speaking of the remarkable events of small-pox, says, "But what is *more* remarkable, measles and scarlatina may occur, either along with small-pox, just previously, or immediately after."

Dr. Empis describes "An epidemic of small-pox, which prevailed in Paris during January, 1852, as having been preceded in some cases by an eruption, sometimes resembling measles, sometimes scarlatina. The two eruptions, he believes, are due to the same specific cause." ('London Journal of Medicine," September 1852.)

When I say scarlatina and measles, I mean eruptions which I could not distinguish from those diseases, either in their access, progress, or decline. I do not deny that there are specific differences, but what I assert is, that they are generally the same.

"*With reference to* the steps of the progress," says Dr. Jenner, "by which the

separation of these three diseases into species was effected, they are the same as those by which typhus fever, typhoid fever, and relapsing fever, have been in recent times separated into species. Nor shall we be surprised at this," he adds, "when we reflect that the circumstances which favour the spontaneous origin, if such be possible, and the circumstances which favour the spread of all are the same."

"The cause of them is the same," says Diemerbroeck, "as the cause of small-pox." (p. 23.)

Three diseases, usually termed the exanthemata, are supposed to have originated in the middle of the sixth century, and to have been introduced into Europe by the Saracens; viz. measles, scarlet fever, and small-pox.

As the measles appeared in the same country, and at the same time, with scarlet fever, it is to be presumed that their respective poisons must have had a similar local origin. "The Arabian who first described these diseases considered them merely as varieties of one and the same species." (Williams on *Morbid Poisons.*)

Let us now adduce a few other diseases, and see whether their manifestations are not equally varied and dissimilar.

First, with regard to syphilis; is there any resemblance between the rubeoloid efflorescence and the ecthymatous pustules; between diminutive acne and the thick-crusted rupia; between cankering ulceration and painful nodosity; between cranial caries and inguinal bubo? And yet all are the effects of the poison, "which, there is every reason to believe," says Mr. Key, "is ever the same."

"Dissimilar phenomena may arise from the same febrific poison," says Dr. Laycock. Epidemic catarrh may have its origin in the pleuropneumonia of cattle. Puerperal fever may originate in the same quarter. An unmarried girl, 20 years of age, had, while menstruating, been on close attendance on a cow that had died of milk-fever. She died with all the symptoms of puerperal fever. The practitioner was in attendance on two parturient cases at the same time; both died of puerperal fever.

We have discussed more than once in this Society the generic identity of puerperal fever, mania, and convulsions.

Most members will recollect Mr. Jeston's cases. A young woman nursed her father with erysipelas. She was seven months advanced in pregnancy. Two of her children had erysipelas; and, lastly, she was seized. Premature labour came on; puerperal fever supervened, and death occurred in seven days. The nurse who attended this woman was immediately after seized with acute rheumatism and pericarditis, and died in seven days.

"There is an identity in the generic cause of all epidemic diseases," says the 'Times' commissioner. "With regard to fever, I believe," says Dr. Graves, "that in this country at least, there is no essential difference between typhus and what is called typhoid fever; the same contagion will produce both forms, and these forms are mutually convertible." "The same exciting cause," says Dr. Stokes, "is capable of producing different kinds of fever in different persons." "Yellow fever has the same origin as intermittent and remittent fever." "Intermittent, remittent, and continued fever, are mere varieties of the same disease. They often run into genuine typhus," says Dr. R. Dundas.

Three men were cleansing out a cesspool. They were all taken out insensible; great constitutional disturbance was induced in all. The first had severe inflammation of the eye; the second had erysipelas of the calves of the leg; the third had pneumonia of the right lung.

As respects gout, I cannot do better than read to you the Protean summary of the eloquent Dr. Begbie:—

"Gout is blood disease, and may disclose itself in every organ of the body, and complicate and involve every disturbance of the system. It may visit every part and every texture, from the crown of the head to the sole of the foot, and molest and vitiate every function appertaining to life. We discover it in the head, where not unfrequently, in the form of intense and continued headache, its first manifestation in the system is perceived; we trace it in fits of giddiness and in transient affections of sight and hearing; and often we are called to acknowledge its presence in apoplectic and paralytic seizures, and its most intimate association with lethargy and coma, in connexion with serous effusion or other cerebral diseases. We discover it in the spinal sheath, or spinal marrow, in the shape of para-

plegia; and in every part of the nervous system in the form of neuralgia, whether under the name of lumbago or sciatica, of hemicrania or toothache, or any of the numerous forms of tic douloureux. We find it in the ear, and we trace it in the throat. We discover it often in the eye, where, under the name of ophthalmia, or iritis, or sclerotitis, it lights up intense and alarming inflammation, which not unfrequently terminates in the destruction of vision. It plays a part, a most important part, in many of the most formidable affections of the chest. We detect it, in many instances, in pneumonia, and particularly in pleurisy, and still oftener in bronchitis, and it is the source of many cases of hydrothorax. Gout is the cause of great embarrassment to the heart and bloodvessels, and perhaps, more than any other agent, lays the foundation of irreparable mischief in those vital parts. It is the immediate cause of some acute attacks of endocarditis and pericarditis, and the proximate cause of numerous chronic affections of the heart and arteries. Gout has frequently its seat in the organs of digestion, complicating their functional derangement, hurrying on their structural diseases, and terminating their organic lesions; witness its frequent connexion with disorders of the liver, and its influence on their progress to visceral obstruction and incurable disease. It is intimately connected with the disorders of the urinary organs; is frequently the origin of granular degeneration of the kidneys; of puriform discharge from the urethra in the form of genuine gonorrhœa, and the well known source of stone in the bladder. Gout lurks in many derangements of the uterus, and discovers itself in some of organic diseases. It is the fountain of many hemorrhages and many fluxes. It is the origin and essence of many cutaneous eruptions, and in the joints the fruitful source of crippling lameness and damaging deformity. Everywhere its ravages are discernible by those who have studied its course,—a course, however, which is too often run unperceived and unsuspected." ('Edinburgh Medical and Surgical Journal,' January 1854.)

Nearly the same may be said of rheumatism. Then we have the connexion of rheumatism with chorea, and erythema nodosum, and the curious sequence of jaundice and urticaria.

General Effects of Morbific Agents: Inflammation, &c.—Let us now very briefly trace the effects of morbific agents on the human frame; and, first of all, let us discuss that effect usually termed inflammation.

Inflammation, I take it, consists, in its earlier stage, in a disproportion between the bloodvessels and their contents. This disproportion may be absolute or relative.

Absolute.—1. From contracted vessels, from their fatty state, as in gangrena senilis; the globule being natural. 2. From enlarged globules, from foreign bodies; in impoverished blood; the vessels being natural.

Relative.—Poisoned blood producing irritation, contraction of the vessels, and consequent disproportion; the fertile source of most diseases.

Stagnation of blood is induced by either state.

"The quantity of blood in the vessels of an inflamed part is not the primary fact in the phenomena of inflammation; the determination is induced by impeded flow, from changes in the *quality* of the blood," says Dr. Geo. Johnson. Two methods of treatment are thus clearly indicated. 1. To push on the tardy current; the stimulant plan. 2. The soothing plan; to allay the tumult; to moderate the quantity of blood going to the part; to facilitate that which does go, and to encourage supplementary circulation. A third leading indication of treatment is to cut off the source, or diminish the supply of the poisoned blood, and to expel that already there from the system.

I have nothing to do in this place with the subsequent phenomena of inflammation, the paralysis of the vessels, their consequent dilatation, nor with exudation. I shall have something to say about traumatic inflammation in due time.

Inflammation, then, is caused by the determination to or stagnation in a part of blood, more or less vitiated, and consequently unfit for normal nutrition. "Rubor, tremor, dolor, &c., the consequences of a cause in operation elsewhere," says Mr. Gallwey.

We are not yet in a position fully to interpret elective determination. "Each morbid condition of the blood," says Mr. Paget, "is prone both to produce an inflammation in a certain part or tissue, and to give that inflammation a certain form *or character.*"

This determination to a part is an effort of nature to expel certain matters which are disturbing her in her ordinary operations; in short, inflammation, we conclude, is nothing more than an eliminatory process. "I am strongly disposed to view the local complications arising in the course of intermittents and remittents as topical eliminations of the poison, rather than as sthenic determinations of blood to such parts," says Mr. Gallwey.

Admitting these principles to be correct, and advancing in the same path, we are led to the conclusion that local disease is but the expression of a general condition that there is no such thing (exclusively, of course, of traumatic causes) as primary local disease.

Let us now see what others say on this subject.

"We believe," says the Dublin reviewer, "that the erroneous idea of a local morbid entity, as distinguished from that comprehensive view of the human economy, which considers pathology, wherever manifested, as more or less of a general affection, must give way." "The further we advance in our knowledge of pathology," says Dr. Todd, "the more must we give up ideas of idiopathic inflammation, and the more constantly do we find inflammatory affections to be due to some defect in the excretory functions, or to the introduction of some morbific material."

"How many of these diseases," says Dr. Stokes, "supposed to be idiopathic, are really secondary to an unrecognised morbid state of the entire system."

"It is of the utmost importance," says Dr. Copland, "to look upon diseases not merely as local manifestations, but as the associated exhibitions of a morbid condition diffused throughout the system."

What does the latest and greatest authority say?

"I must confess," says Sir B. Brodie, "that in proportion as I have acquired a more extended experience in my profession, I have found more and more reason to believe that local diseases, in the strict sense of the term, are extremely rare."

Local causes may operate so as to render one organ more liable to disease than another; but everything tends to prove that, in the great majority of cases, there is a morbid condition, either of the circulating fluid or of the nervous system, antecedent to the manifestation of disease in any particular structure. "Moreover, even in those cases in which a disease may be distinctly traced to some kind of mechanical injury, the character which it assumes depends as much on the state of the general health as on the injury itself."

We can now understand why bruised parts, injured structures, new tissues, &c., should be so liable to become affected with disorder or disease. For example, the opening out of old wounds in scurvy; the deposit of tubercle in false membranes; the liability to a recurrence of inflammation in the same organ; the inflammation of inflammatory deposits; the pains in parts injured many years before, during the prevalence of an east wind, or premonitory to an attack of acute disease, as of gout. An old sportsman, just previously to an outburst of gout, declared to me that he felt pains in every part that had been injured during his lifetime; that they brought vividly to his recollection every tumble that he ever had had, and they were not a few.

Chemists and physiologists have complained of the want of correspondence in the analyses of the blood. If we look at the infinity of the causes changing its character and vitiating its constitution, our surprise should be great if two analyses could be alike. If we bear in mind the revolutions of the blood impelled by age, sex, food, exercise, occupation, nutrition, and excretion, we must recognise it in a state of unceasing change. Is it to be wondered at, then, that the functions of the body should become distracted in their opposing advocacy, and be the fruitful source of all intrinsic disease! "The whole tendency of modern pathological research," says Dr. Carpenter, "has been to show that the human frame, if endowed with an ordinary amount of inherent vigour, is no otherwise incident to disease than as it is in various ways subjected to the agency of causes which produce a departure from the normal play of its functions."

"Pathological actions," says Dr. Wright, "are nothing more than physiological ones out of order."

Let us now just run through the list of diseases, and see how they conform to such an allocation. We will first take the inflammatory diseases, and then the

nervous. Beginning with the head, we may have inflammation of the membranes of the brain; but it is tubercular, nephritic, bilious, syphilitic, or epidemic.

"Meningitis is rarely if ever a primary disease." (Dr. Druitt.) "Idiopathic inflammation of the membranes, at least, is almost peculiar to the tubercular diathesis." (Dr. Chambers.) "A cerebro-spinal arachnitis was epidemic among the French troops in 1847-49; it seemed to depend upon a contaminated state of the blood, and bore a great analogy to affections of the typhoid kind." "Epidemics occasionally arise with a decided bias to cerebral inflammation." (Dr. Sandwith.) "Inflammation of the brain is, in adult subjects, a rare disease." (Dr. Todd.) "The cases commonly called brain fever, phrenitis, are nothing more than examples of some form of delirium."

It is admitted that the pineal gland and choroid plexuses are safety-valves for the separation of noxious matters.

What are the inflammations of the eye—that microcosm of the human body—but those of a typhoid, arthritic, cachectic, gonorrhœal, syphilitic, rheumatic, and scrofulous character?

Inflammation of the throat is rheumatic, syphilitic, or epidemic. "Croup has shown itself capable of transmission by infection." (Dr. Huss on *Diseases of Sweden*.)

Where are the inflammations of the chest (including the pleura, tubes, lungs, and heart) unconnected with a general cause? Look at that epizootic, the pleuro-pneumonia of cattle; and at the tubercular, renal, rheumatic, typhoid, pyæmic, and bilious origin of most pectoral inflammations. The specimen of the most acute pleuropneumonia ever presented to this Society, and designated by it a regular phlegmon, arose from pyæmia in a case of otitis.

"There was an epidemic of pericarditis in Kilkenny in the winter of 1848-49." (Dr. Lalor.) "The irritating agent in common catarrh is most probably some atmospheric poison." (Dr. Todd.) "Is bronchitis ever a healthy inflammation?" (Mr. Gallwey.)

The abdominal organs, the liver, intestines, kidneys, bladder, are confessedly more subject to the operation of general causes than any other, and I will not weary you by particulars. "Acute peritonitis is so rare, as in all cases to suspect perforation; and chronic peritonitis is always tubercular," says Louis.

I have nothing to say here of the puerperal and surgical conditions and relations of the peritoneum.

The limbs generally are affected by rheumatism, &c., and the skin by the exanthemata, and by a variety of eruptions, which, by general consent, are admitted to be blood diseases.

Nervous Diseases.—We are greatly at fault, I hesitate not to say, in nervous affections. We are too much taken up with the nervous influence, whatever that may be, and forget, that the nerves are capable of conveying other matters, more material than their own proper fluid, and that the *vis nervosa* is acted on diversely by an infinity of causes.

It will be admitted with Prochaska, that the nervous system materially influences secretion and nutrition. Therefore, if it be unduly acted on, the secretions, &c., may be vitiated and depraved.

Again, if it be granted that the nerves in any—say inflamed—part are affected with the other tissues composing that part, it follows that they must be influenced more or less by the blood; and, of course, whether that blood be in a more or less morbid condition; and that the nervous system will have its elective affections, in common with the rest of the systems of which the human body is composed.

Each portion of the brain is probably "decreed its province" as regards its affinity for certain agents: thus alcohol acts on the cerebellum; belladonna on one portion of the brain; opium on another.

Take the ordinary expression of the nervous system—that of pain. "Pain is the sentinel of health. Pain is the prayer uttered by the nerve for healthy blood." (Romberg.) "Clinical experience," says Dr. Gull, "almost daily affords instances of not only increased sensibility from a centrifugal excitation of sensitive nerves, but of alteration in the circulation and nutrition of the part following upon it." "Did our means of investigating the nerves," says Dr. Graves, "equal those we *enjoy in the examination* of the vessels, we should find that in inflamed parts, the

nervous matter increases, in many cases, as rapidly and as considerably in extent as the vascular." "Disease commencing in the nerve matter," says Dr. Davey, "ultimately involves the capillaries; and these becoming congested, inflammation and its consequent disorganizations may or may not succeed."

"An hysterical girl was seized twice with inability to speak, and was cured both times by mercury to salivation, after all other means had failed. It naturally leads us to suspect," says Dr. Law, "that there may be more of *real positive organic lesion* lying at the root of those *so-called nervous disorders* than is commonly imagined."

Insanity. "Both reason and science," says our distinguished associate, Dr. Burnett, "favour the idea that insanity is not, and ought not in the first instance, and often to the very last, to be regarded as a disease of the brain, but as a disease *floating in the blood.*" "Insanity is more closely allied to hysteria, chorea, tetanus, &c., than is generally imagined." (Dr. Davey.) "I feel thoroughly convinced," says Mr. Smith, "that we ought to view the noisy vociferations, restless mobility, and intensely accumulated excitability and exaltation of the insane, simply as an effort of nature to throw off the *materies morbi.*" Hence cases *may* and *do* occur in which "convulsions are salutary, and mania itself a healthy crisis."

I need only refer you to the *Lectures* of Dr. Todd for a triumphant demonstration of the humoral origin of the epileptic, renal, hysterical, puerperal, anæmic, traumatic, typhoid, erysipelatoid, rheumatic, gouty, and toxic delirium.

What do we mean by *brow-ague*, except that the supraorbital nerve is affected by some aguish or other poison!

"Serious cerebral and spinal symptoms, caused by spasmodic pressure of certain muscles about the cervical and laryngeal regions, which has been set up by *distant irritations*," called by Marshall Hall "*trachelismus.*"

"Disease commencing in the nerves of some particular part or organ, may be gradually propagated to the spine, producing all the symptoms which are referable to an original affection of the nervous centres. (Dr. Begbie.)

Hooping-cough is due to the influence of a poison which gets into the system, and produces its local manifestations on the vagus nerve. In certain cases inflammation of the lung arises; and if so, the *middle lobe* of the right one (for reasons I some years ago insisted on), in the same way as sciatica, is sometimes attended with heat and swelling according to the principle just enunciated.

Asthma. We have all been taught to consider asthma a nervous disease. Of course I do not include the organic condition, *emphysema.*

In addition to various matters irritating the vagus nerve, including those interesting cases of difficult breathing, probably urinary, brought before the Society, I may name the condition of the system in *dysmenorrhœa.*

Mrs. C. has always a bad cold and sneezing after each imperfect period, and pains in the limbs.

Miss F. has asthma after or at each imperfect period. I attended her with one attack of the greatest difficulty. She was speedily relieved by a diuretic mixture.

Palpitation. Let us beware how we call palpitation a nervous disorder. Take the following not uncommon case. We are called to a patient, probably a female, who reports that she has frequent fits of bad and increasingly severe palpitation. We examine the heart, and find nothing the matter—all is quiet; and then perhaps *we call her nervous.* The fits of palpitation nevertheless continue. From considerations which I need not stop to name, but probably that she had been confined two or three months before, had had œdematous limbs, perhaps convulsions, &c., &c., we are led to suspect something the matter with the urine. We test, and find it *albuminous.* The problem is solved. The capillaries are obstructed by the thickened blood: the heart labours to overcome the difficulty: and hence the palpitation: in like manner as the capillaries are obstructed, and the left ventricle exposed to rupture, under the influence of sudden grief or terror.

A good illustration of this affection occurred in this (the Royal Berkshire) hospital some months ago. It was from the most perfect reliance on the truth of these principles that I presumed to differ from the prognosis given by the medical authorities. I ventured to assure the patient that there was no disease of the heart; that she should be thankful she had a heart capable of grappling

with the difficulty under which it temporarily laboured; and that, as the urine acquired its normal composition, the heart would return to its natural action. The event proved the accuracy of this opinion.

Chorea is a blood-disease. Dr. Elliotson saw an instance which arose from a sore which had been running in the thigh, and suddenly healed up.

Tetanus and Hydrophobia are blood diseases. I will merely observe, that a wound has as much to do with the production of tetanus, and the bite of a dog with that of hydrophobia, as a wound has to do with the production of erysipelas, or a scratch with that of phlegmonous inflammation; and no more.

"This change in the blood," says Dr. Todd, speaking of tetanus, "may be caused either by the introduction into it of some new material from without, or by the generation within it of some new matter possessing highly poisonous qualities."

In what do the muddled brain, and spinal spasm, and cervical rigidity, in imperfect catamenial relief, differ from tetanus, *except in degree?*

"The clinical history of trismus nascentium and of laryngismus stridulus shows that these diseases must be precisely similar to tetanus in the essential points of their pathology," says Dr. Todd.

I may appropriately finish this section of my subject by a passing allusion to that class of nervous susceptible individuals who appear to be *all nerve*. They can bear nothing like other people; everything is dreadful. Pain is agony, and palpitation a "twinging vellication." In these cases, there is a deficiency somewhere; "the animal spirits," as the fathers in physic well say, "are generated out of order, and sent out of order to the nerves."

Causes of Inflammation.—Having premised that the blood is already in a state of retrograde metamorphosis; that the individual is exposed to one of the ordinary causes of inflammation; and that inflammation of some organ ensues—let us proceed to analyze the common explanation of its causation and its treatment.

Say the individual is exposed to *cold*, and that inflammation of the lungs follows; and that he is bled, leeched, blistered, nauseated, mercurialized, purged, sweated, and starved; and that he fortunately recovers. What is the usual explanation of all this, if any is ventured on?

Taking cold is so intimately associated with our notions of inflammation that we cannot think of one without fearing the other. Notwithstanding the hourly use of these more than "household words," I may be permitted just to ask what is meant by "*taking cold?*"

"The equilibrium of healthy nutrition," says Dr. Bird, "is disturbed; the tissues cease to approximate true nutritive materials; the assimilating functions of the stomach and collatitious viscera are deranged; and the eliminating excretory action of the liver, skin, and kidneys, further impaired or suspended, so as to admit of effete and imperfectly oxydized materials reverting into the circulating fluid."

I need scarcely insist on the importance of the skin, when it is remembered that the amount of fluid passing off amounts to more than two pounds in twenty-four hours—as much as from the kidneys in the same period, and nearly twice as much as from the lungs. An animal painted over with impermeable varnish quickly dies.

The first effect of the impression of cold then is, that the skin is thrown into a state of disorder.

I here may remark that *heat* gives *cold* equally readily with cold and moisture. A very intelligent lady observed to me, "the only thing that gives me cold is a *hot sun.*" Whether we admit this as our theory or not, we allow it in our practice; all our remedies for "catching cold," from a hot bath to a treacle-posset, have the same end in view, viz. to act on the skin. These remedies are multifarious, and include taking something warm; putting the feet in hot water; going to bed, and sleeping under nine blankets; lying in bed; keeping in the warm; working it off by strong exercise, as a long walk, a good dance; by getting jolly drunk, &c.; in addition to a sesquipedalian list of medicated potions.

Well, then, having been exposed to cold, and these remedies not succeeding, or not having been employed, the common observation is, "it flies to his lungs;" and the sufferer gets inflammation there.

What do we literally mean by inflammation in general, and inflammation of the

lungs in particular? Why, that there is a *fire* there; and that the indication is apodictic—*to put it out* as soon as we can. All our remedies, from bleeding to starving, are directed to this end, because they are "good for inflammation," regardless, or nearly so, of causes and conditions. I beg very respectfully to challenge every item of such an exposition.

What do we effect by bleeding in inflammation of the lungs? Admitting that there is some morbid matter in the blood, by bleeding we lessen its quantity: remembering that the whole of the blood passes through the lungs at least twenty times in an hour, by bleeding we lessen their labour: recollecting that the law of inflammation is to spread, by bleeding we diminish or arrest a further deposit in one lung, and prevent its extension to the other; and the system may be so charged with plethora and crassid stuff, that by bleeding we start the organic processes, as we do in cases of poisoning, as of opium. So far is it clearly indicated. Bleeding has no direct influence, however, on the inflammation already existing; it and all other remedies only lessen, divert, direct the morbid stream; and nature does the rest.

Bleeding, leeches, starving, blisters, lessen and divert; mercury, emetics, sudorifics, purgatives, direct and stimulate the organic processes to augmented action, and thus to remove any foreign matter, wherever it may be, and which is abhorrent to nature.

There is no remedy which has so universal an application, and very justly so, in inflammation, as mercury. "The use of mercury in inflammation of the liver," says Dr. Elliotson, "is indisputable;" but I have not seen it of any more use in *hepatitis* than any other *itis*. It is not because there is inflammation of the liver that it is to be given, but because *inflammation exists*. How does mercury operate? "The obvious effect of mercurials," says Pereira, "is an increased activity in the secreting and exhaling apparatus." "Not as moderating the hyperæmial process," says Mr. Simon, "but as determining the necrosis and dissolution of the inflammatory products."

Again, *argumentum ex remedio deducere conceditur:* if inflammation were a *morbid entity*, which it is generally—I have endeavoured to show how erroneously—considered to be; if mercury be powerful in inflammation—which universal testimony unanimously admits—then should it be omnipotent in those cases of inflammation where there is nothing but unfettered inflammation to subdue, viz. in traumatic inflammation.

But is it so? "In traumatic inflammation of the eye, mercury is utterly useless," says Mr. Critchett. Mr. Liston raised his voice against the use of mercury in traumatic inflammation. Mr. Hancock treats lungs wounded by fractured ribs, not by bleeding, but with opium. A boy, 5½ years old, was run over by a cart; excruciating pain followed, and intense peritonitis. How was he treated? By bleeding, leeches, blisters, purgatives, mercury? No; by none of these, but by opium: four or five glasses of port wine a day, and plenty of nourishment. He recovered. "The great point," said Mr. Stanley, who treated him, "is to support the system under the intense irritation excited by the visceral inflammation."

Let us return now to the treatment of inflammation. Obviously the treatment of bleeding, &c., is only applicable to those cases where the loss can be sustained without damaging the patient's constitution, or jeopardizing his existence. Surely it would be madness to take it away from those who had too little already. How often, nevertheless, does the following lamentation grate on the ear. A frail creature is seized with inflammation, say of the lungs, and dies. "Poor thing!" it is exclaimed, "she was *so weak*, they" (meaning the doctors) "*could* not bleed her; only a few leeches and a blister were applied; she could not *bear* the remedies indispensable for its reduction, and essential for its cure; and she sank in three days."

How much longer will rheumatism be treated as inflammation? A blooming girl, aged 18, had suffered from rheumatism and consequent heart affection in her childhood, and was rescued from impending mischief, by steel, quinine, and good diet. In the autumn of 1854, she was again attacked with acute rheumatism. The treatment was leeches, blisters, purgatives, and starvation. Notwithstanding, however, the disease advanced with unmitigated severity. A few weeks before her death, she was attacked with a *strong inflammation* of the heart. Leeches

were renewed; blisters reapplied; purgatives repeated; starvation enforced with dogged pertinacity; so that, at the end of three months, every bone in her skin could be counted, and death was welcomed as a relief to her sufferings.

"One of the greatest, if not the greatest, and most wide-spread error in the practice of medicine, viz. the treatment of all local, acute, and febrile diseases as inflammation," says Dr. Stokes.

"The term inflammation—a word formerly in the mouths of our professional brethren on all occasions," says Mr. Skey, "is now limited in its application, and should be yet more limited; and I believe, in a yet more advanced state of medical science, will be restricted to an actually rare condition of the system."

"Perhaps no greater improvement has taken place in the treatment of disease than the administration of *wine* in inflammatory diseases." (Erichsen.)

"No man is fit to treat general disease or local inflammation until he has conquered that fear of stimulants which a long course of erroneous teaching has instilled into his mind." (Dublin reviewer.)

I may say of the old treatment of inflammation what a reverend divine says on another subject. "We see it in all its strength, and feel it in all its mischief. We may read what it has done; we may fear what it will do; and see what it does: but we have loved it, and loved it so well, that we will not be cured of our love." (Rev. Mr. Yates.)

Let it not be understood, I pray, that I am railing against the treatment of inflammation by bleeding. In fit cases and subjects, there can be no question but that bleeding is a remedy of great power and admirable efficacy, and as clearly indicated, though not so indiscriminately employed, now as ever.

Accidental Direction of Morbid Tendencies.—A very interesting subject, on which I have the materials for dilating, did time allow, is the accidental direction of morbid tendencies.

An individual is disposed to disorder of a particular (say tubercular) character; it may and does often depend on accidental circumstances to what part or organ the mischief is directed. Examples must have occurred to every member of the profession. For instance, a young lady is compelled to fight the battle of life as a governess. The chances are that, if she does not become consumptive, she will turn insane. Many a precious child has been lost to the world through the cramming haste and witless ambition of its parents. In an artisan, hard worked, ill fed, and worse lodged, the *lungs* will give way. In a girl, under similar circumstances, particularly if nature should be thwarted in her periodic effort, the *abdomen* will suffer.

This disposition to disease may be congenital, as in the instance just named, when it is called *predisposition;* or it may be acquired, as in the syphilitic condition. We may, however, carry the elements of mischief about us—say epidemic, syphilitic, &c.—for a longer or shorter time, awaiting some accidental and favourable cause to excite its irruption. "The poison of syphilis, being once received into the blood," says Mr. Erasmus Wilson, "remains there for years, and possibly, indeed certainly, for the rest of existence." The organic functions may, however, be so nicely balanced that it has no local manifestation; but let this equilibrium be disturbed by care, want, or any tribulation, any number of years afterwards, and then it may be unmasked, and show itself in all its hideous deformity.

"It probably would not be erroneous to allege," says the 'Lancet,' "that the whole of the 2,362,236 persons which are mentioned as constituting the population of London, are every one, man, woman, and child, affected at the present moment by the agencies which produce cholera; and that, in many thousands of them, a few doses of castor oil, or any other active purgative [or any other disturbing causes, it might have added], would be sufficient to excite the disease in its most virulent form."

"In January, 1847," says Dr. Thom, "the 86th regiment returned from Scinde to Bombay, in several steamers. While landing at Bombay, in the afternoon, one boat's load of men, on their way from the steamer to the landing-place, were exposed to a shower which completely drenched them; and in this condition they had to remain till they landed, and marched up to join their comrades in the town barracks. About twelve o'clock that night, five or six cases of cholera were admitted, and several more with diarrhœa.

"On inquiry next day, I found that *every case* was in the men who had been wetted in the act of disembarking. The whole of the cases appeared in this particular party within twenty-four hours after their wetting. For three weeks more, while the regiment occupied the barracks in Bombay, no case even resembling cholera occurred; but, on being moved across to go to Poonah, the same men, after the first day's march, showed in several instances distinct signs of cholera. There must have been something *latent* in the constitution of the men, which, without wetting and marching, might never have become manifest, but died away under the quiet and sanitary influence of the season. It must be borne in memory that, six months before, the regiment had between 400 and 500 cases of cholera, and lost by deaths 240."

The exciting cause may fortunately, but rarely, never occur. On the other hand, circumstances may have preceded rendering the system peculiarly susceptible of the influence of a poison. The poison may enter the system, and be carried off unseen, through fortuitous and extraneous channels; or it may be topically arrested and evacuated, and thus blunted in its virulence; or a trifling injury may excite, in a state ripe for mischief, the most terrible and fatal disease.

"There may be conditions in which the system is ready for the production of organic disease for an *indefinite time*. This may be true, not only with respect to tubercular disease, but also in many other essential affections, including a variety of fevers. And this disposition, this silent state of the malady, may itself pass away, and none may ever know how near the individual was to the invasion of a dangerous or fatal disease." (Dr. Stokes.)

Mr. James, of Exeter, in speaking of the remarkable effects of old ulcers in giving vent to the materials of epidemic poisons, says, "But the most remarkable proof of ulcers affording such relief from noxious matter is probably to be found in the singular exemption from infection of persons labouring under them during the influence of a pestilential epidemic."

There was an epidemic of erysipelas in University College Hospital. Professor Erichsen observed, that "all the *recent* wounds exposed to the morbific influence became affected; and that the *suppurating* wounds mostly escaped." "If bubo suppurates, no secondary symptoms will follow," says Mr. H. Lee. "If the disease," referring to Indian plague, "could find an *outlet* by means of a bubo, it might do well; but, if not, the poison was sure to prove fatal," says Dr. Hirsch.

I have remarked on previous occasions, that one of the most curious occurrences, in practice, is, how small an injury, in certain states of the system, will excite the most terrible disorders. When erysipelas prevails (as in hospital), the most trifling operation may lead to a fatal issue in a patient who, had he been untouched, might and would have remained uninjured. Let a brewer's man get the most trivial injury, uncontrollable phlegmonous inflammation may be induced, who, without this injury, might have swilled for years, unhurt, unscathed.

"Within the tropics, and at certain times of the year, the slightest cause will bring on tetanus," says Dr. Jackson. "Tetanus is brought on by the slightest scratch," says Dr. Keenan. Mr. Coulson "tapped a patient; *malignant* disease appeared in the wound, which never healed. No disease was found elsewhere. It is essential to remember," he adds, "that, in unhealthy persons, *very slight* local causes may determine severe and specific disease, according to the constitutional predisposition of the patient. *This is a general law of pathology.*"

Non-Recurrent Disease.—A very interesting chapter might be written on those diseases which occur *but once*, as a general rule, in an individual. Without entering on disputed ground, I may name small-pox and the other eruptive diseases and perhaps syphilis. "A patient who has the first time an indurated chancre *never has a second*," says the Dublin reviewer. This is not easy to account for. I believe we have made no advance in the solution of the question since the time of Avicenna.

Diemerbroeck, in speaking of the causes of small-pox, says, "Avicenna and most of the Arabians refer the material cause to the impurity of the mother's blood, stagnant in the woman with child, and with which the birth was nourished in the womb; which corruption, they write, lies dormant so long in the body, till by virtue of some specific efficient cause, it be provoked to a fermentaceous effervescency; and by that means separates that defilement, adhering from the birth

to some minute particles of the body, and, being so separated, pushes it forward, together with the particles of the blood so defiled by it, to the extreme parts of the body, and there raises up wheals. Hence it was that the Arabians believed that all men were subject to the small-pox, in regard that the impurity was again to be separated from the parts. So that if that specific fermentaceous effervescency be strongly and efficiently performed at the first coming of the small-pox, then that impurity becomes totally evacuated; and then the person to whom that disease happens lives free from that distemper all the rest of his life. But if that effervescency be not violent enough, that impurity happens not to be totally expelled; and so the same person, when the reliques of that defilement ferment again, upon some other cause, may happen to have the same distemper a second and third time, but rarely a fourth."

In other words, we should now say that, in the advent of these diseases, some material was used up, or that they left behind them some incompatible substance. Closely allied to this subject is the prophylaxis of disease; that is, the prevention of one disease by the previous occurrence or presence of another; for example, small-pox by vaccination, phthisis by ague, measles by small-pox, &c.

Antagonistic Influence of Disease.—This term means the cure of one disease by the intercurrence of another. Examples are numerous.

Mr. T.'s daughter was born healthy, and continued so till six years of age. She then began to be mischievous, talkative, &c. This increased for a year and a half; she was always in mischief, climbing on the house-tops, and sitting on the chimney-pot, &c., and incessantly talking and restless. At the end of a year and a half, she became dull, stupid, inanimate, dirty, filthy, and perfectly insensible to cleanliness and decency, and rebellious to all control and management. She was not able to feed herself. This state continued for another year and a half. During these three years she had had frequent convulsive fits, and they had increased so much during the last few months as to resemble *one continued fit*. At this time, the other children had scarlatina: in her turn she took it; had it severely; slept almost continuously for four days and nights, and was with difficulty aroused to take about once a day a draught of toast and water. In fact, she was almost put away up stairs, with a hope that death might, and a belief that it would, come and put an end to her misery. After four days, however, she awoke from her torpor, and recovered rapidly from her disease. From this time she never had a single fit. A fortnight afterwards, she was quiet, orderly, sensible to everything around her, decent and clean, teachable, and at once obeyed the commands of her mother. What is curious, she was now able to repeat the hymns she learned and knew well three years before. All that she now appeared to suffer from was a deficiency of the knowledge of things for a girl of her age; but she was perfectly capable of receiving impressions. She continued to improve, and, twelve months afterwards, the report was "She is now a fine girl, *before* those of the same age in intelligence, and does not differ from them in any particular."

I was attending Mrs. G.'s child with laryngismus stridulus. It had had it three months, and I was making little impression on it by treatment. Scarlatina now came into the house. I watched with intense interest its extension to my patient. It came, and from the moment of its access, the crowing ceased, and never returned.

Dr. Cowan related to me the case of a lady with diabetes, cured by the supervention of gout.

Mr. Wickham informed me that a patient had been admitted into the Winchester Hospital with double cataract and diabetes; and that the cataracts entirely disappeared under the influence of the diabetes; and the sight was entirely restored.

Connected with these cases may be named those extraordinary complementary efforts which nature makes when she only *partially succeeds* in some of her natural processes; for example, the diarrhœa of dysmenorrhœa.

Treatment of Disease.—Pursuing the same course, we now come to the treatment of disease by medicines.

We may begin with this principle, "that the local mischief can never be repaired so long as the blood continues diseased; and if the blood by any means assume its normal constitution and its healthy vitality, the local affection, if no *vital* organ be too extensively diseased, will get well spontaneously," says the *Dublin reviewer*.

The first point, then, worthy of all observance is, *to pursue the general indication*, to treat the primary pathological condition.

"It is well known," says the *Lancet*, "that the deaths of thousands of soldiers, registered as owing to fever, rheumatism, pneumonia, and other causes, are in reality to be ascribed, if we ascend to the primary pathological conditions, rather to *scurvy*—a condition upon which the fever, rheumatism, and other immediately fatal diseases, are but *epiphenomena*."

Take anæmia in a girl. Look at the hundred and one complaints of pain in the side, stomach, back; of palpitation; of sleeping little; eating less, and vomiting that; and of being fit for nothing. Give her *steel*, and how surprisingly all her ailments drop off, one by one.

In rheumatic delirium with pericarditis, Dr. Todd observes, "Important and serious as is the affection of the heart, as compared with the delirium, it is just now *of no moment;* for, if the delirium be allowed to continue, there is great danger of the patient dying suddenly from exhaustion."

The same treatment must be pursued in what is called *bilious pneumonia* of the *upper lobes*, with delirium. We may be horrified to find half the lung solid; but we must forget for the time that there is such a thing as inflammation of the lungs, and pursue the general indication.

"I think we may lay it down as a general principle," says Dr. Stokes, "that the more the secondary affections of fever are anatomical, the greater will be the utility of *stimulants*."

"There is no mistake more fatal in fever than the withholding of food and wine," says Dr. Graves.

I saw a young man, aged 22, with bloody urine, cough, pains in his limbs, nodes on his shins, &c. He had had, he said, inflammation of the kidneys, lung, dropsy, &c. He was admitted into the Hospital, under Dr. Cowan, who shrewdly treated him antisyphilitically, with sarsaparilla and hydriodate of potass; and his kidneys, lungs, nodes, &c., got rapidly well.

In certain low conditions of the system, as in some cases of erysipelas, the amount of stimulus required and given would appear fabulous if put on paper. A young lady, aged 16, with influenza and bronchitis, was so weak and fainting that she took a bottle of wine a day, for three days successively, with benefit and with cure.

There is no class of cases that shows the value of treatment more than this. Treatment is everything; it is decision or doubt, victory or a victim. One plan "gives the patient a *chance* of regaining an equilibrium between nutrition and excrementation; the other plunges him down the hopeless descent of regressive metamorphosis." (Dr. Bucknill.)

One atmosphere may prevent the due action of our remedies; another atmosphere may be so curative as to render other remedies unnecessary. "Pleuritic complications immediately disappeared on our leaving Scinde for Bombay," says Mr. Hunter.

The *Harmattan wind* "*is pancratic in disease.* Its first breath," says Dr. Lardner, "completely banished intermittent fevers. Those who had been enfeebled by the practice of excessive bleeding, then prevalent there, soon recovered their strength. Epidemic and remittent fevers, which had a local prevalence, disappeared as if by enchantment. But the most wonderful effect of this atmospheric phenomenon was, that it rendered infection incommunicable, even when applied by artificial means, such as inoculation."

In some cases the indication is obscure. A healthy young man, aged 24, in July, 1846, went to Dover, and stayed twelve days. Ague was in the house in which he sojourned. In June, 1847, nearly twelve months afterwards, he was attacked with ague of the tertian type. It was readily cured by quinine. Four months after this, I was called to him again with jaundice. He was treated for some days with no effect whatever. I now observed that he was better and worse *every other day*. Remembering his ague, I gave him two grains of quinine in infusion of senna every six hours. The effect was magical. From that day he began to improve, and his cure was rapidly completed.

The primary indication, I need scarcely add, is in many diseases entirely unknown; and the only reasonable plan of managing them is to shorten their secondary effects.

Thus, we employ stimulants in snake-poisoning, or artificial respiration in an overdose of chloroform, to keep life going till the poison passes off.

In some of these, however, we are encouraged to hope. "Cancer, gout, scrofula, I cannot doubt," says Mr. Simon, "will presently yield to philosophical investigation what they have refused to blundering quackery; and that, within the lifetime of many here, there will be a specific treatment of each diathesis, founded on an exact knowledge of the physiological laws of its manifestation."

Special Indications. As practitioners, in pursuing the general indication, we must not forget any special indication that may be present; as the dilatation of the pupil in iritis, the relief of pain, or the prevention of spasm in tetanus or hydrophobia.

I may be allowed here to digress for a minute to protest against the plan usually followed in the treatment of these dire diseases. Surely it is time another method was followed than that of killing the disease, and frequently the patient, by strong medicines. The direction probably is as has been suggested—terebinthinate and that class of remedies, and the *chemical diuretics* of Dr. Golding Bird. By these and such like we should have a chance, by a charmed catalysis, of involving the peccant matter in their penultimate transformation.

If we analyze our special treatment of disease, we shall find that it amounts to little beyond fulfilling the general indication; and if we proceed still further, we shall discover that this mainly resolves itself into two modes—the stimulant and the antiphlogistic. It comes, therefore, to this, that in all diseases we find the system in one of two states, either above or below par; and we act accordingly. So that a practitioner, armed with mercury, opium, and antimony, in one hand, with steel, quinine, and wine in the other (with a lancet in his pocket), might go forth and treat, and successfully too, most diseases that flesh is heir to. Such a practitioner was the late Mr. Liston. "His medical treatment consisted principally in the exhibition of wine, antimony, and quinine—*three remedies*, and which he employed with consummate skill."

Let it not be inferred from these observations that I wish to ignore the importance of the "*adjuvantia* and *lædentia*" in medicine: for in truth, a due attention to these is indispensable to its successful exercise.

What I have no hesitation, however, in asserting is this; that being correct and clear in our general principles, the rest will come with double force; our directions will be definite in their warnings, liberal in their allowances, and absolute in their prohibitions. "A morbid derangement," says Mr. Syme, "if examined with the light of general principles, may be seen correctly, although entirely misunderstood when surveyed through the narrow chink of (blundering) specialism."

If we rigidly examine our daily practice, we shall find that in the vast majority of cases, we treat the patient and not the disease; that our remedies are palliative, not aggressive, and that we pursue much the same system in a great variety of apparently dissimilar affections.

My impression is, that diseases have been made too much of; they have been described as if they were "isolated entities," and treated, instead of the state that gave rise to them.

When the next system of nosology is published, I anticipate that it will be much curtailed in its dimensions, and that it will consist of a few types of disease, with the local affections, as accidental, not necessary concomitants.

It is probable that the types of disease are not numerous; that there is a greater unity of type, whatever the local manifestation may be, than is dreamt of in our present philosophy. Our daily practice teems with the materials of unsuspected alliances, could we but recognise them.

It is more than probable that small-pox, measles, and scarlatina, and other classes of disease, are merely allotropic of each other, and that, under certain conditions, they may pass and repass into each other.

"What the conditions are which determine these conversions, it is at present," says Faraday, "impossible to say."

Surgical Diseases.—It would probably be considered an omission were I not to say something about surgical diseases.

The same rules apply to the medical treatment of surgical as to the so-called *purely medical cases.* Surgical diseases recognise also a similar pathology.

Take an example or two.

Aneurism. "There is, in the frames of those persons, a general inflammatory state of the whole arterial system, probably a morbid condition of the blood, and a local inflammatory condition of one artery and set of vessels. The surgeon will see that unless these conditions be removed or mitigated, he can expect beneficial effects neither from compression nor from any other mechanical contrivance."—(Edinburgh Reviewer.)

"The giving of wine on the third day," says Professor Paget, "after the operation for hernia, was dictated by the fear that a peritonitis would presently ensue—the localized indication of a general disease. Same in phlebitis," he adds, "some are local, others are declaratory of diseased blood."

I might run through the entire list of surgical diseases in the same fashion, but time forbids; I must hasten to the conclusion.

Conclusion.—My course, it must be confessed, has been somewhat erratic. It is the course, however, through which I have been almost involuntarily carried; the consideration of one subject has led naturally, I trust not violently, to that of another.

It must be manifest that some subjects have been touched lightly upon, others necessarily omitted, and certainly I have not exhausted a tithe of the materials which my notes supply.

All along I have endeavoured to adduce concurrent testimony, and to include my own in the opinions of others. I cannot, therefore, be charged with having presented my subject under any unauthorized phase; much less have I desired "impiously to set up my own small judgment to overturn all that has grown up under the directive influence of men plainly born to be physicians, out of the ever-varying character of human maladies, throughout long ages, and over all the accessible regions of the globe."

My aim has been to show that there is a greater unity in disease than is imagined, and a much greater simplicity in its treatment than is practised, were we not trammelled by what is called authority, but which means unthinking routine.

It is easier to follow a path which is beaten, than to seek, with difficulty and perhaps danger, a shorter cut, untrodden, for ourselves; at the same time, we may have a strong conviction that there must be another way, and that the old one, though that generally travelled on, is tortuous and circuitous.

We go with the stream, nevertheless, and thus it is we too often make a compromise between our consciences and our conveniences, unwilling to differ and afraid to doubt.

It may be urged that where so much is unknown, we may be well excused for committing ourselves to any theory. "After these discoveries," says Liebig, "the organism offers indeed to the experimentalist enough that is not comprehended, but nothing that is incomprehensible."

"What is perceived," says Humboldt, "is far from exhausting what is perceivable."

Practical men may exclaim, What is the use of any theory about disease? All that we want, is to know how to cure it. It may be replied, "practice, without the aid of scientific theory, is mere groping in the dark." "Every quality of a body," says Liebig, "gives, under certain circumstances, a key to open some closed door; but theory is the master-key with which you may open all doors. Theory is the sum of all practice; it depends on the most exact knowledge of facts and natural laws, and is produced by this knowledge."

"An hypothesis colligates the facts, demonstrates their correlation, traces the analogy of unconnected observation, evolves from the multitude of facts—where no apparent brotherhood consists—a common principle, the detection of which recalls them from confusion to system, from incomprehensibility to science." (Sir W. Hamilton.)

With regard to the humoral pathology, if any one doubts, let him direct his attention to the subject for a short time, and I am convinced his niggard acquiescence will close in full belief.

"Had," says our learned member, Dr. Burnett, "the scientific mind been as steadily attracted to the subject of late years as it was at first, the high probability is, that much more real and practical progress would have been made, both

in physiology and pathology, that we can now boast of." I entirely agree with him.

All physiology directs, all pathology corroborates, all chemistry proves, and all practice confirms, that of all the pathologies, the humoral is the correct one. The full current of investigation is proceeding in this direction.

It gives a reasonable explanation of pathological phenomena, and of those methods of treatment which experience has sanctioned; while it simplifies everything, suggests new objects, and confirms old results of inquiry. Finally, it consummates the end and aim of all our labours; it gives facility to those who minister, and help to those who suffer.—*Association Med. Journal, June* 29, 1855, *p.* 605.

129.—ON A CASE OF FEVER COMPLICATED WITH DISEASE OF THE MITRAL VALVE.

By Dr. Lums, Physician to the Meath Hospital.

Although the condition of the heart in fever has had much light thrown on it by the researches of my colleague, Dr. Stokes, yet, as his labours have been directed chiefly to the affections of its muscular structure, and to the diagnosis and treatment of this state, I think it may prove both interesting and important to direct the attention of the profession to diseases of the mitral valve as forming a very serious complication, and necessitating a very cautious prognosis when we meet it associated with fever, as was well exemplified in the following case:—

Mr. H., æt. 38, of active and temperate habits, but of a very bilious temperament, was attacked with the ordinary symptoms of fever last August. I saw him on the fourth day of his illness, he looked very haggard and pale; complained of headache, want of sleep, nausea, flatulence, and constipation; his tongue was coated with a thick fur; pulse very quick, small, and irregular; the impulse of the heart was strong but irregular, and accompanied with a slight roughness, but no murmur; the maculæ appeared on the sixth day of his illness, and he went on very well until the eighth day, when his breathing suddenly became much hurried and laboured, attended with a constant short cough, and palpitation. He was very restless, bled from the nose, and also expectorated some very florid blood. Sir H. Marsh now saw him, and on examining his heart pronounced an unfavourable prognosis, which was unfortunately soon verified, as he rapidly became worse, bathed in profuse perspiration, and died suddenly on the ninth day of his illness.

I examined his body forty-eight hours after death: the weather was very warm, and decomposition had advanced rapidly, particularly in the thorax, which was much discoloured. On opening it the pericardium appeared much distended, and on dividing it the heart protruded, inflated with gas, and giving a tympanitic sound on percussion; on dividing its large vessels a quantity of very fluid blood escaped, and the heart collapsed like a wet cloth, all its muscular substance being quite flaccid. I examined it carefully next day with Sir H. Marsh and Mr. J. Hayden. We found the left ventricle dilated to twice its natural size, but not hypertrophied; the posterior segment of the mitral valve was rigid and long, so as to allow of regurgitation; the musculi papillares were all greatly hypertrophied, proving that the disease must have been of long standing. There were no traces of any *recent* disease in the heart, lungs, or in any other part of the body.

I confess, I was quite surprised at the rapidly fatal termination of this case; for although physician to the Meath Hospital for many years, during which time I have had constantly many cases of fever under my charge, I have never met with a similar complication in the course of fever. I feel quite satisfied that the disease of the heart had existed for a long time prior to the fever, not only from the morbid appearance, but also from his history: though he never complained of his heart, yet his friends informed me that he never could walk fast nor ascend heights, without suffering much from shortness of breath; and his wife told me that she had for some time observed a great beating of his heart—as she expressed it, a great knocking against the chest. Although he was maculated, yet there *were no* bad symptoms, nor any appearance of danger till the eighth day, when *the disease of the heart* became suddenly so aggravated. The small and irregular

pulse had led me from the first to examine the heart carefully; and as its action and sounds were quite different from what we observe in a heart weakened from the effects of fever, I felt certain that the alteration of rhythm depended on disease of the mitral valve; but I was not aware of the very serious nature of this complication to the fever, till informed by Sir H. Marsh, who at once recognised it as similar to two cases which he had lately seen in consultation, and both of which proved fatal.—*Dub. Hosp. Gazette, Sep.* 15, 1855, *p.* 245.

130.—CASES OF NEURALGIA, WITH OBSERVATIONS.

By Dr. C. Handfield Jones, F.R.S.

The very great prevalence of aguish and neuralgic affections at the present time inclines me to think that short records of some of the cases which have fallen under my own observation may not be without interest.

Case 1.—M. C——, female, single, servant, aged twenty-five, much engaged in washing, of healthy, rather florid aspect, for a month has had pain of the right hand, affecting all the parts supplied by the median nerve. The pain is easier when the hand is used, is worse when she is still, and at night; no sleep; there is a feeling of numbness, as well as pain; tongue moist, clean; urine clear; bowels open. She never had gout or rheumatism; no members of her family have had gout, but a sister suffers in the same way as herself. A variety of remedies were at first tried, without benefit, such as iodide of potassium in smaller and larger doses; afterwards nervines, with carbonate of iron; then sulphate of quinine, two grains, with sulphate of iron, four grains, and electro-magnetism to the part. Some benefit was produced by seven minims of liquor arsenicalis, three times a day. There was less pain, but the fingers were very cold, numb, and powerless.

A month had now elapsed, when, on the 7th of March, I began to give her quinine, in five-grain doses, three times a day.

March 10th. Improved; sleeping better; had not near so much pain.

14th. More pain in the hand, extending up the elbow, the last two days. I increased the dose to ten grains.

17th. Hand much better; much more free from pain.

24th. Hand in no pain at all, only numb. I then gave her fifteen grains twice a day, desiring her to take it three times a day, if she did not get well.

April 7th. Hand quite well for a week; has done her work; health better. Discharged.

This case illustrates well the beneficial effect of large doses of quinine.

Case 2.—H. O——, aged fifty-four, female, married; admitted May 25th, 1854. She has symptoms of catarrh, but states, also, that for a long time her hands and fingers have felt numb and sleepy at times, and have been in violent pain at night. After the catarrh had been cured, I gave her quinine, two grains, with four grains of sulphate of iron, in a mixture, three times a day.

Ten days after this, she considered herself well enough to be discharged, having still, however, slight numbing sensations, attended with some stiffness in the fingers of the right hand, affecting the ends mostly, as far up as the second joint.

In this case, small doses of quinine and iron were adequate to effect a nearly complete cure.

Case 3.—C. B——, female, middle aged; not anemic; digestion weak; skin cool; pulse rather weak; bowels torpid; tongue clean; aspect healthy. Complains that when she gets into bed at night the fingers of both hands "go dead," those supplied by the ulnar nerve being first affected. The forearm seems to suffer in the same way. The numbness or pain does not come on until she has been asleep; it awakes her, and continues more or less all night. It is not felt during the day.

March 8th. To have two grains and a half of disulphate of quinine; tincture of muriate of iron, fifteen minims; spirits of chloric ether, fifteen minims; water, one ounce, three times a day.

23rd. Health better, and suffers less with her hands; is not awake now [illegible]

night, but has cold shivering feelings at this time. Quinine increased to four grains.

April 2nd. Better in herself, and her appetite has improved. The attacks now come on towards morning, awake her about five or six a.m., and last about half an hour. After the attack has passed off the hands and forearms feel painful, not numb, the little and ring fingers being most affected. The attacks are much more prone to come on if she lies on either side. Skin quite warm. Looks the picture of health. Has chilly sensations now and then.

9th. Has the attacks still, but not so violent or so often; the pain remains in the hands and arms afterwards; they occur at the same time every morning. The region supplied by the ulnar nerve is now alone affected. She is easily fatigued by exertion.

16th. The patient is very much better, almost well; has only slight remains of the neuralgia in the ulnar nerve region of the right hand; is not disturbed at night; has no cold shivering sensations. The weather changed from cold east to warm west wind. Not having seen the patient since, I conclude that she has recovered, as she was to call again if necessary. The quinine was clearly the principal agent in the cure, and it would no doubt have shortened the duration of the treatment had I given larger doses at first. The periodicity of the attacks is worthy of remark, and the presence of shivering sensations, both of which circumstances indicate an affinity with ague. As the disorder declined, it confined itself more particularly to the ulnar nerve, which was the first to be affected in the paroxysms. This seems to me to indicate rather a peripheral than a centric affection.

Case 4.—M. J——, aged twenty-nine, female, married; tall, healthy-looking, but rather pale. Has been ill one month; suffers from pain in the hand and forearm, not extending above the elbow, severe at night, but only as a numb sensation in the day. All the fingers are affected. She is four months advanced in pregnancy. Is occasionally engaged in washing.

Jan. 28rd. To take five grains of disulphate of quinine three times a day. No improvement having been produced at the end of a week, I doubled the dose. The next week she reported herself better; the fingers were affected, but not the forearm. The next time I saw her, as she was not improving, I gave her, for a week, liquor of chloride of arsenic, five minims three times a day, and after three days conjoined with it saccharized carbonate of iron, one scruple three times a day. This plan gave no promise of benefit.

On Feb. 29th, she was not better; the pulse was very weak; she had no sleep after the pain came on at night. I then gave two grains of disulphate of quinine with four grains of sulphate of iron, in a mixture, three times a day; and a pill of one-third of a grain of acetate of morphia and four grains of extract of henbane, at bed-time.

Feb. 27th. She reported that her fingers were much better; she had slept better and was stronger.

March 6th. Has continued to improve; sleeps well; fingers feel numb; no pain at night; bowels open.

13th. Is well; has no uneasy sensation in her fingers.

In this case, quinine and iron in combination were more effectual than large doses of quinine, or arsenic, or carbonate of iron. The expense of large doses of quinine is so considerable, that with hospital cases I generally try the combination of the sulphates mentioned above, or a similar one of the citrates, and in a good many cases it has answered very well. The sedative at night I believe to be decidedly useful in cases of this kind.

Case 5.—E. E——, aged fifty-six, a female, married; admitted on the 4th of September. She complains of pain in the right forearm, extending from the fingers up to the elbow, commencing in the mid-finger, of more burning character at night, not disturbing her rest, but very severe in the morning, when she cannot move her hand to open or close it. The fingers are often burning when she touches or holds anything; at other times numb. Foot somewhat similarly affected. Urine free, clear; pulse of good force; skin warm; is in tolerable health. Ordered, two grains of sulphate of quinine, four grains of sulphate of iron, and an ounce of water, three times a day. Five grains of colocynth pill with *blue pill, every other night.*

Sept. 14th. Her fingers have lost the heat, but are numb; she cannot close them; attempting to use a needle makes them numb.

21st. Less numbness, but feels pain up the arm into the axilla if she tries to lay hold of a needle.

28th. Improving. To take three grains of quinine, three times a day.

Oct. 5th. Not so well; all the fingers "go dead." To have four grains of quinine, three times a day.

12th. Somewhat better; suffering from want of sufficient food. Continue quinine, and to take half an ounce of cod-liver oil three times a day.

19th. Better diet; neuralgia not improved; is drowsy. To take ten grains of quinine, three times a day; continue oil.

26th. Not better. Ordered, a scruple of carbonate of iron, three times a day; an ounce of decoction of bark, a scruple of muriate of ammonia, and three grains of carbonate of ammonia, three times a day.

Nov. 2nd. No improvement; she is not able to hold a needle or paper-cutter without having pain in the wrist and up the forearm, in the course of the ulnar nerve; bowels costive; straining at stool causes sensation of pins and needles in the arm. Continue carbonate of iron. Strychnia, one grain; compound extract of colocynth, a drachm: divide in twelve pills: one every night at bed time. Apply a liniment of ammonia and turpentine to the affected part.

9th. She is much better since she was electro-magnetized two days ago; bowels open regularly; she can hold a needle better; it does not slip from her fingers now.

16th. The neuralgia returns occasionally. A second electro-magnetization was rather injurious.

23rd. Fingers a considerable deal better; can use a thimble now which she has not done for two months; no pain up to the elbow; she cannot close her hand in the morning until she has put it in warm water; when she closes it, she says it snaps in the situation of a small swelling over the flexor tendons, just before they pass under the anterior carpal arch; after the snap, the fingers feel numb for one or two minutes; bowels open; health very good. A blister to the swollen part.

30th. The blister appears to have done some good, though she says the hand was dreadfully swollen the next day, and it is still stiff in the morning, so that she cannot close it. The hand was bad yesterday; she could not work with it, but can to-day; she is able to do needle-work now; the swelling at the wrist is much diminished; the hand is a considerable deal stronger than last week. Continue iron and pills. An ounce of decoction of bark, and two grains of iodide of potassium, three times a day.

Dec. 11th. Wishes to be discharged, being considerably better.

This case was very similar to the preceding, but in the latter part of its course was associated with some (apparently) rheumatic phenomena. I have repeatedly observed that neuralgic disorders have more or less of rheumatic element in their constitution, so that they may require a direct anti-rheumatic treatment at their outset, and afterwards one more suited to pure neuralgia. In the foregoing case carbonate of iron was the remedy that effected most; quinine was of little avail. So much improvement had taken place before the blister was applied, that I cannot attribute a great deal to its action. I rather look on the effusion in the sheaths of the flexor tendons as an interlude, than as a necessary part of the pathological process. There was not the same nocturnal aggravation in this case as in others. The increase of the pain in using the fingers in holding any small object was remarkable; it probably was occasioned by the increase of pressure on the hyperæsthetic nerves. I do not think there was any notable anæmia in this last case; I am pretty sure I did not give the iron on that account.

These few cases afford examples of the uncertainty of action of remedies in neuralgia. This uncertainty, I believe, is not attributable, by any means, entirely to want of diagnostic skill. I do not find that we have any indications to point out in what cases large doses of quinine, or quinine and iron, or arsenic, or carbonate of iron, are to be preferred. I do not think this should surprise us; systems that are to all appearance exactly alike, react very differently on the application of what we may call the therapeutic tests. Romberg remarks, that "neuralgia occurs less frequently in the brachial than in the crural plexus." This

certainty does not accord with my experience during the last three years; I have much more often met with it in the demesne of the former than of the latter. He has "not been able to discover any fixed type" in this form of neuralgia. In four of the above cases nocturnal exacerbation was very marked. He thinks it is "less frequently isolated than sciatica or tic-douloureux, and that it occurs more often in combination with other affections of an allied or different nature." In my cases, the disorder has been remarkably localized, sometimes confined itself to a single nerve. All my cases (above recorded) were of the female sex, which accords with his observation. He makes no mention of internal remedies, but speaks of the benefit derivable from permanent or flying blisters, and, in his own cases, (where the affection was purely neuralgic,) by the use of the warm baths and douches of Wiesbaden and Aix-la-Chapelle.

Case 6.—Jane M——, aged forty-eight, married; admitted on May 15th. She has been ill three months; has pain in the centre of the right palm, extending up the arm over the shoulder to the back-bone; it is constant, and gets worse; it is increased at night. The hand is numb, except the finger and thumb; there is much burning sensation in it. She gets no sleep at night; tongue clean; pulse weak; has hemorrhoids, which bleed much. Ordered, two grains of quinine; four grains of sulphate of iron; ten minims of tincture of nux vomica, three times a day; one-third of a grain of muriate of morphia, every night. She improved immediately, and was almost well by the middle of June, although the nux vomica had to be omitted on the 1st of June, on account of its making her sick; and she had some relapse of the neuralgic pain at the same time. The morphia did not confine the bowels.

The peculiar features of this case are the exemption of the fingers from the disorder, and the way in which the pain extended itself upwards. The description which was given to me seems to imply that the painful sensation moved upwards like an aura epileptica. If this were so, it is certain (unless it were of centric origin) that the morbid action must have spread gradually from different sets of nervous filaments to others, and not, as it is sometimes said, have been propagated along the nerve in the central direction. This idea, which even Dr. Watson does not reject, seems quite in opposition to the recognised law of "eccentric phenomena," as it is termed by Romberg.—*Lancet, June* 9, 1855, *p.* 577.

131.—ANALYSIS OF THE BLOOD IN RELATION TO THE PRODUCTION OF SUGAR BY THE LIVER.

By Professor Lehmann.

M. Lehmann has made an elaborate series of analyses of the blood of various parts of the economy, with the result of entirely confirming the accuracy of M. Bernard's statements.

1. *Sugar of the Blood.*—In the blood of the vena portæ of dogs fed upon animal food or fasting, no traces of sugar are met with, and in that of dogs fed upon potatoes, or of horses fed with bran, hay, and straw, only the merest traces are found. That of the hepatic veins always contains large proportions. In three dogs fed on meat the proportion varied from 0·814 to 0·946 per cent.; in three others, fasting for two days, it varied from 0·764 to 0·814, and in two fed with cooked potatoes it reached 0·981 and 0·854. In two horses it amounted to 0·635 and 0·983 per cent.

2. *Fibrin and Albumen.*—The fibrin of the blood of the vena portæ does not, in horses and dogs, sensibly differ in quantity or quality from that of the fibrin of other veins; but the blood of the hepatic veins, collected without admixture, contains no fibrin, or only small traces, due to the presence of a greater quantity of white globules in the hepatic compared with the portal blood. Very careful comparative analyses also show that a remarkable quantity of albumen disappears in the liver, especially in dogs. It is upon the indubitable fact of such disappearances that M. Lehmann founds his opinion that the sugar found in the liver has its *origin in the fibrin.*

3. *Fat and Red Globules.*—The blood of the vena portæ always contains much more fat than that of the hepatic veins. The serum of the portal blood in dogs fed with meat is usually richer in fat than that of horses; but this difference does not prevail in the blood of the hepatic veins. In horses, the globules of the vena portæ are more rich in water, and especially so in iron, but they are poorer in globuline, in extractive, and in salts, than that of the hepatic veins. A considerable quantity of iron, both in dogs and horses, always disappears from the blood while traversing the liver, the difference being greatest in dogs. It results from this that a portion of the hæmatine of the blood disappears in the liver, and probably contributes to the formation of the colouring matter of the bile, adding to the proofs of the complete analogy prevailing between bili-fulvine and hæmatoidine.

4. *Comparison of Venous and Arterial Blood.*—On examining the blood taken from different parts of the same horse, M. Lehmann found that that which quitted the liver by the hepatic veins is incomparably the most sugary. Next in order comes the blood of the vena cava inferior. When the blood has traversed the lungs, and become arterial, sugar is no longer found in it in horses fed on starch and oats. In dogs and rabbits we find it there only when the venous blood has contained more than 0·3 per cent. of sugar. This is the case under all the conditions in which sugar passes away by the urine, as after the punctures made by M. Bernard, after injecting large quantities of sugar into the veins or stomach, and after feeding rabbits plentifully with carrots and beet-root. But, under all circumstances, the hepatic veins, and then the vena cava inferior, continue to exhibit the greatest proportions. The blood of the small veins,—as the cephalic, the digital, the temporal, and the external abdominal in the horse,—always contains less globules, and more serum, and consequently more water than arterial blood; but the larger veins, and especially the vena cava inferior, contain blood as much, if not more, concentrated than arterial. All M. Lehmann's experiments seem to show that a remarkable quantity of globules disappears in the general capillary vessels. The greater density of the blood of the vena cava inferior is not due alone to the expulsion of water through the urinary secretion, but chiefly to the affluence of the blood of the hepatic veins. The comparison of all these analyses seems to prove, as established long since by M. Bernard, that two separate functions are performed by the liver, the formation of sugar and blood globules, and that of sugar. The blood of the smallest veins contains more fibrin than does arterial blood, or that of the vena cava inferior and the jugular. In the vena cava twice as little fibrin has been found as in arterial blood. Arterial blood always contains more mineral salts than venous.—('Gazette Médicale,' 1855, No. 12.)

Whilst on this subject, we may mention that M. Figuier, Chemist to the School of Pharmacy, denies ('Gazette Médicale,' Nos. 5, 13, and 15) altogether the accuracy of M. Bernard's statements as to the glucogenetic function of the liver. He details to the Académie des Sciences his chemical experiments, in proof that glucose is found in the blood as one of its normal constituents during digestion, but in less quantities than in the liver, that organ effecting the condensation or accumulation of certain products of the alimentary canal. In explanation of the fact of M. Bernard having found sugar in the liver of animals fed exclusively on meat, he observes that this meat, containing blood, was itself the vehicle of the sugar, which was found in especial abundance during the digestive process.

In regard to M. Lehmann's conclusions, M. Figuier finds them at variance with the results of his own researches, which he declares show that the blood of the vena portæ contains a notable quantity of sugar during the digestion of raw meat, the quantity found in the hepatic veins depending much upon the period of examination. Thus the important fact, he says, is established, that the blood which enters the liver during digestion already contains sugar, so that this organ does not play the important point in its production assigned to it. The liver is also shown to be an organ in which the products of digestion, whether albuminous or glucose, are accumulated and remain for a time, prior to being distributed through the general circulation. If examined only two hours after the repast, the blood of the hepatic veins is found to contain a very insignificant quantity of sugar, although the liver itself be loaded with it; but if examined only four hours after, the blood

coming from the liver will be found to contain a notable quantity of glucose. The same observations apply to albumina, these two substances probably contributing to the formation of bile and the secondary order of secretions which take place in the liver. When the intestinal digestion is completed, and the alimentary canal is entirely freed from the saccharine matters furnished by the aliments, the blood, after traversing the system, returns to the liver free of sugar, and while traversing this organ it acquires an additional portion. In animals that have fasted two or three days there is no sign of sugar in the portal blood, but a certain amount is still found in the hepatic veins, having been furnished to them by the liver, which has a reservoir of glucose.

At a subsequent meeting of the Académie, M. Bernard stated, that as the assurance with which these statements are made may impose on some persons, he deemed it necessary to declare that they were completely incorrect. He has performed his own experiments before *savans* of all countries during the last six years, too frequently to admit of any doubt being held; and their recent repetition enables him to declare most positively, that during the digestion of meat no sugar whatever is found in the portal blood, while a notable quantity always then exists in the hepatic veins. The Académie has referred M. Figuier's papers to a committee, consisting of MM. Dumas, Pelouze, and Rayer.—*Med. Times and Gazette, June* 9, 1855, *p.* 578.

132.—ON THE ECRASEUR OF M. CHASSAIGNAC.

By David P. Holton, Esq., Paris.

[This is a new surgical instrument, which is just now attracting the attention of the profession in Paris, and seems about to create much interest.]

The *écraseur* is especially adapted to the removal of pediculated tumours, and for sections in which it is important to avoid hemorrhage.

It is so adjusted as to embrace the part to be cut by a loop of chain presenting a plane surface with which the section is made. The two extremities of the chain, entering the tube of the instrument placed in contact with the point where the division is to finish, and successively and at determined intervals drawn by a balanced lever, worked at the opposite extremity of the tube. Every successive diminution of the loop is retained, and thus the operation may be completed within any specified time deemed expedient, having reference to the state of the patient, and the vascularity or hemorrhagic tendency of the parts.

The end proposed to be obtained by the *écraseur* is section without the inconvenience of ligature, or the hazards of hemorrhage.

A work containing plates, and a full description of the several forms of the instruments manufactured by M. Mathieu of Paris, adapted to operations of the exterior of the body, and in sundry cavities, is soon to be published; therefore it will be preferable on this occasion simply to state a few cases of its applications. Let us commence with *hemorrhoidal tumours*. In the case of external hemorrhoids, each separately or several united are, in the first instances, surrounded at the bone, as in ordinary cases, by ligature. Over the thread, and in the groove thus formed, and separating the tumour from the healthy part, is placed the loop of chain which is to penetrate by alternate progressions of each half of the loop operated by the balance lever at intervals of fifteen, thirty, or sixty seconds. Internal hemorrhoids are sized by an *érigne*, or are brought to view by other usual modes, and are embraced and removed in the same manner as those already described.

Several of the cases operated on by M. Chassaignac have been of the most vascular kind; yet their removal has not been attended or followed by any loss of blood, or any of the grave accidents which sometimes occur in the treatment by cauterization, ligature, or excision by the common method. Polypi of the rectum have been successfully removed in a similar manner.

One of the most remarkable applications of the *écraseur* is in the operation of fistula in ano, which alone entitles it to be ranked amongst surgical improvements, combining as it does all the advantages of the *apolinose* of the ancients and the section of modern practice.

About three weeks ago, M. Chassaignac removed a testis degenerated into an

encephaloid tumour some five inches long, three broad, and two thick, occupying the right portion of the scrotum. A ligature was at first applied in such a manner as to define as near as possible the limits between the healthy tissue and the tumour. The pedicle thus formed was severed by the *écraseur* without the loss of any blood. A considerable portion of healthy tegument was necessarily involved in the operation. This was to be regretted, and an observer might have hesitated to approve of the employment of the *écraseur* in this case. A wound was thus left six inches in length, the edges of which were coapted and retained by suture; but three or four days after, adhesion by first intention having failed, as might have been expected, the sutures were removed, and simple dressings applied, and the wound is now rapidly healing by a process of healthy granulations.

This instrument has been successfully used in excising the neck of the uterus, and in the removal of erectile tumours. It is not my object to enter into a minute description of these cases, nor shall I attempt to criticise what to many would seem an abuse of the *écraseur*, in a case of phymosis, and another of varicocele, now under treatment at the Hospital Lariboissière.

I should not omit to mention a case of great interest presented at to-day's (Oct. 1st) clinique. A man, aged about sixty, of strong constitution and vigorous frame, had a cancroid affection on the right lateral portion of the tongue. The tumour was about two inches long, one broad, and three fourths of an inch thick, projecting forward to near the tip of the tongue, from which it was separated by a narrow fissure, giving the appearance of a double tongue. Most of the patients mentioned have been operated on when under the influence of chloroform; but this man of strong nerve, used no anæsthetic. The operator, taking with his left hand the entire mass, circumscribed the tumour by a strong ligature, placed in the groove thus formed the loop of the *écraseur*, and commenced the alternate motions of the lever. As the hazards from hemorrhage in operations on the tongue demand special care, M. Chassaignac directed an assistant to make the progressive movement at intervals of one minute each, thus prolonging the operation more than an hour.

The patient, seated in his chair, himself supporting the instrument, presented the appearance of an *Oriental with his pipe*. Occasionally he arose and walked to the window, if not to view the beautiful court, parterre, and pavilions of that model hospital of Paris, at least to breathe the refreshing air as it circulated around the heights of Montmartre. While the excision of the tumour was thus slowly progressing, M. Chassaignac was at liberty to proceed to the operation for fistula in ano, the removal of a polypus from the rectum, and the elimination of hemorrhoidal tumours from three other patients. Verily, thought I, this is a new epoch in operative surgery.—*Lancet, Oct.* 18, 1855, *p.* 352.

133.—SELECTIONS FRON FAVOURITE PRESCRIPTIONS.

By Dr. Horace Green, New York.

[Many of these prescriptions are the contributions of the most distinguished American physicians and surgeons of the present time. They are the result of years of collecting from the most experienced and practical men who have visited the hospitals of New York.]

For obvious reasons, we shall arrange these formulæ under their appropriate heads.

Narcotics and Sedatives.—The narcotic principle in medicine differs from that of the sedative in this, that its primary action is in some degree stimulant, whilst the sedative principle tends directly to depress the vital powers without inducing any previous excitement. The ultimate action of both narcotics and sedatives is to diminish the sensibility of the nervous system, thereby allaying pain and promoting sleep.

Among the direct sedatives *hydrocyanic acid* is one of the most prompt and efficient. Administered in appropriate doses, it tends directly to lower the sensibility of the nervous system, to diminish the frequency of the pulse, and to induce a sensation of quiet and calmness throughout the whole system. Alone, or in com-

junction with other remedies, prussic acid constitutes one of our most valuable therapeutic agents.

The following combinations with this remedy have been proved to be of great service in the treatment of disease:

℞. Acidi hydrocyanici, medicinalis, gtt. lx.; morphiæ sulph. gr. iij.; tinct. sanguinariæ, vini ipecacuanhæ, aa f. ʒ ss.; syr. pruni virginianæ, vel misturæ amygdalæ, f. ʒ v. M. fiat mistura cujus sumat cochlearium parvum bis terve in die.

We have found the above a most valuable remedy in the treatment of *chronic bronchial disease;* in allaying the *cough* present in *tuberculosis*, and in all *pulmonary catarrhal diseases*, unattended with fever. As the acid is apt to float on the top of the liquid, the phial should be shaken on the administration of each dose.

℞. Acidi hydrocyanici, gtt. xl.; vini antimonii, f. ʒ ss.; syrupi tolutan. f. ʒ iss.; mucil. acaciæ, f. ʒ ij. M. fiat mistura, capiat cochl. parvum ter quaterve die.

This may be used in the same cases as the former, when the cough is troublesome, and is attended with some degree of fever.

As a remedy in the treatment of *hooping-cough*, hydrocyanic acid surpasses in efficiency every other known general remedy. We have employed it for many years in this disease, and can fully substantiate the declaration of Dr. Hamilton Roe, that "Hydrocyanic Acid of Scheele's strength will, if exhibited as soon as the whoop is heard, effect a cure in almost every case of simple hooping-cough." If the disease has been going on for many weeks, its effects are not so immediately felt, but nevertheless it will cure in most instances.

The following formula we are accustomed to employ:

℞. Acidi hydrocyanici, medicinalis, gtt. xxv.; vini ipecacuanhæ, f. ʒ ij.; syr. tolutan. f. ʒ j.; aquæ destillatæ, f. ʒ iij. Fiat mistura, cujus sumatur cochl. parv. quartâ quâque horâ.

It is important that its use be entered upon as soon as the presence of the characteristic whoop determines the nature of the disease. If the breathing is oppressed, or the symptoms present indicate the existence of bronchial inflammation, the administration of the sedative should be preceded by the exhibition of an emetic, and perhaps by the application of a few leeches to the chest.

If administered too freely, the acid will produce a greatly depressing effect on the vital powers. Should much debility therefore occur during its employment, the remedy should be omitted, and mild tonics, with a more stimulating expectorant, be exhibited for a few days, when the use of the hydrocyanic acid may be renewed.

"The dose of hydrocyanic acid for an infant," says Dr. Roe, "is about three-quarters of a minim of Scheele's strength, gradually increased to a minim, which may be given every fourth hour; for a child of three years of age, about one minim, gradually increased, if necessary, to a minim and a half every fourth hour; for children of ten or twelve years of age, a minim and a half, increased to two minims every fourth hour. It is safer to give this medicine in small doses at very short intervals, than to run any risk of producing too great depression by a large dose. The frequency of its exhibition must depend upon the strength of the patient and the severity of the attack. The dose should be repeated when the effects begin to subside, which in mild cases generally happens in three or four hours; but when much fever is present, its influence is felt but a very short time; under such circumstances, a larger quantity may be given and at shorter intervals, without any apprehension of danger, *so long as the fever lasts.*"

℞. Acidi hydrocyanici, medicinalis, f. ʒ j.; liquor potassæ, f. ʒ ss.; infus. calumbæ, f. ʒ ij.; misturæ amygdal., f. ʒ iv. Misce. Capiat cochl. minim. ter die.

In cases of long-continued chronic bronchitis, the physician occasionally finds this disease complicated with a peculiar irritable condition of the gastric mucous membrane, manifested by tenderness of the epigastrium, a red tongue, frequent headache, and a feverish condition of the system. In such cases where the inflammation has extended to the mucous membrane of the stomach, producing this not *uncommon form of broncho-gastritis*, the exhibition of the above combination, with

the hydrocyanic acid, the alkali, and the bitter vegetable infusion, will exert a prompt and a decidedly happy influence on this diseased action.

Combined with the extract of belladonna, hydrocyanic acid has also been found very useful in the treatment of *gastralgia* and in "*irritable gastric dyspepsia.*"

The following mixture prepared, and a teaspoonful of the medicine administered three or four times daily in these affections, will, by acting on the nerves of the stomach, greatly diminish their irritability.

℞. Extract belladonnæ, gr. x.; acidi hydrocyanici, medicinalis, gtt. lx.; tinct. columbæ, syr. simp., aa. f. ʒj.; aquæ destillatæ f. ʒij. Misce.

The above combination has likewise been employed with great benefit in the treatment of *spasmodic asthma.*

These, then, are some of the useful combinations of one of our most important therapeutic agents; and we can assure the practical physician that not only in these affections, to which allusions have been made, but in the treatment of many other diseases, he will find these remedies invaluable aids in controlling diseased action.

The *anhydrous*, or pure hydrocyanic acid, which consists of one equiv. of cyanogen, and one equiv. of hydrogen, is of a nature so exceedingly poisonous, that it cannot be employed with safety in medicine. The *medicinal* acid, which is the preparation that should always be directed to be used in our prescriptions, contains only 2-5. per cent. (United States Pharmacopœia) of the pure acid. That of the Apothecaries' Hall, London, contains 3-2. per cent.; whilst the medicinal acid of the French Apothecaries is nearly equal to that of the United States Pharmacopœia—namely, 2-4 per cent. of the pure acid of Gay Lussac.

As the strength of the different medicinal acids cannot be depended on as being always of the same uniform power, it has been proposed that the cyanide of potassium be substituted in medicine for the hydrocyanic acid.

℞. Cyanidi potassii, gr. xxii.; alcohol. officinalis, f. ʒxi. Misce.

This preparation of cyanogen, which possesses the same medicinal qualities, and is of the same strength with the hydrocyanic acid, is greatly preferred by many practitioners as a therapeutic agent, inasmuch as it can be depended on as being always of a uniform strength. It may be used in the same doses and under the same circumstances in which the hydrocyanic acid is administered.

As palliatives in the treatment of all forms of *neuralgia*, the narcotics and sedatives are very generally resorted to by practitioners, especially during the paroxysms of the disease. When appropriately combined, their efficacy in these affections is more prompt and decided than when separately administered.

℞. Extracti hyoscyami, ʒ ss.; morphiæ sulphatis, gr. iij.; strychniæ, gr. ii; capsici pulv., ʒ ss.; zinci sulphatis, gr. xv. M. Fiat massa, in pilulæ xxx. dividenda; capiat unam, ter quaterve in die.

In neuralgia, unattended by organic lesions, the above pills, exhibited every sixth or fourth hour, according to circumstances, will be found to be an excellent remedy. They have proved especially serviceable in that form of neuralgia in which the division of the fifth pair of nerves is so frequently involved. Not only in facial neuralgia, but in all cases where the disease has been caused by malaria, this combination may be administered with confidence that the result will be favourable. The valerianate of iron conjoined with the extract of hyoscyamus is an excellent antispasmodic and tonic, and may be employed with great advantage for the treatment of *chorea* and all the *neuralgic affections of anæmic and debilitated females.*

℞. Extracti hyoscyami, ʒss.; ferri valerianatis, ʒi. Fiat massa, et in pilulas triginta dividendas; quarum date unam ter in die.

The valerianate of iron and the valerianate of zinc are two highly valuable remedies, and were the therapeutic powers of these medicines better understood by the profession, they would be much more extensively employed than they now are for the treatment of disease. The valerianate of zinc, Dr. Neligan says, "is one of the most valuable modern additions to the Materia Medica."

℞. Extracti hyoscyami, ʒiss.; zinci valerianatis, ʒj. Fiant pilulæ xxx. Capiat unam bis terve in die.

The above pill is a valuable remedy in the treatment of *facial neuralgia*, and, indeed, is equally serviceable in all the nervous and neuralgic affections for which the valerianate of iron has been advised.

In *young anæmic females*, with indications of a chlorotic condition of the system; and also in *children of strumous habits*, the phosphate of iron, exhibited in combination with the sulphate of quinine, is a therapeutic agent of great value.

℞. Ferri phosphatis, ʒj.; quiniæ disulphatis, gr. xii. M. Fiant pulv. xii., quarum capiat unam bis terve in die.

A physician of great experience, and celebrated for his successful treatment of diseases of females, has employed for many years, and with much advantage, the subjoined combination of an alterative and a tonic in the management of *certain forms of uterine diseases.*

℞. Syrup. ferri iodidi, ℥j.; tinct. actææ racemosæ, ʒv.; tinct. rad. aconiti, ʒiij. Fiat mist. cujus cap. gtt. xx. ter in die.

We have seen engorgement of the os tincæ and non-malignant induration of this organ disappear rapidly under the persevering internal administration of the above tonic; while at the same time, the following ointment was applied once a week, by means of friction, with the finger, to the indurated os.

℞. Extracti hyoscyami, extracti conii, extracti belladonnæ, aa. p. e.

To each ounce of which mixture add one drachm of iodide of potassa—mix thoroughly, and apply as above.

℞ Ferri sulphatis, ʒij.: potassæ iodidi, ʒiss.; tinct. calumbæ, syrup zinziberis, aa. ℥ij. Fiat mist. capiat coch. parv. ter in die.

This mixture may be exhibited with advantage, whenever we desire to promote the absorption of *glandular enlargements*, and in all cases where a tonic and an alterative are indicated.

Not unfrequently the general practitioner will encounter cases of obstinate intermittent; and of uncontrollable *neuralgic affections*, which will resist, altogether, the effects of the ordinary antispasmodics, when singly administered. In such instances, we have often succeeded perfectly, by the combination and exhibition of a vegetable and mineral tonic,—as the following:—

℞. Liquor potassæ arsenitis, f. ʒiss.; tinct. cinchonæ, ℥iij.; syr. aurantiæ, ℥j. M. Hujus mist., sumat cochl. min. bis terve in die.

During the last two years, *intermittent fevers* have occurred more frequently, in some parts of this city, and in the vicinity of the city, than for many previous years. In some of those cases, where the disease has proved obstinate, not yielding to large doses of quinine, long continued, we have found it to be promptly arrested by the administration of a tea-spoonful of the following mixture, twice or three times a day,—the last dose being administered a short time before the period of the anticipated paroxysm.

℞. Quinæ sulph. ʒj.; liquor potassæ arsenitis, f. ʒij.; acidi sulph. aromat., f. ʒj.; tinct. cinch. co., syr. zinziberis, aa. ℥ij.

When the preparations of arsenic are employed, it is safest to give the medicine after a meal. When thus exhibited, larger, or more effectual doses may be given with more safety, than when taken fasting. Should, however, gastric irritation arise, under its use, or swelling and stiffness of the eyelids occur, the medicine should be immediately discontinued.

Should it from any cause be desirable to administer these remedies in the form of a pill, we may employ the following formula:—

℞. Acidi arseniosi, gr. ij.; quiniæ disulphatis, ʒj.; conserv. rosæ, ʒss. Misce optime, et fiat massa, in pilulas xxx. dividenda; sumat unam bis quotidie.

We have had, recently, much experience in the use of the different preparations of manganese, and have become fully satisfied, that this mineral tonic, in its different combinations, will prove a most valuable addition to our pharmaceutic preparations.

The presence of manganese in the blood, has been fully established by the experiments of MM. Millou, Hannon, and others; and, recently, M. Burin, in a memoir presented to the French Academy of Medicine, has given an analysis, by which he shows the amount of manganese in the blood globules, and exhibits the condition in which it exists. It is indeed as constant an ingredient of this fluid, in its normal condition, as iron, and it is well known that a deficiency in quantity, of *both* these metals, may be observed in the blood in many cases of anæmia, *chlorosis, tuberculosis, &c.*; and hence the employment of manganese is proper, in most

instances, where the administration of iron is indicated. Frequently, both may be given in combination, with great advantage.

The most important preparations of manganese, for pharmaceutical purposes, are the *phosphate*, the *malate*, and the *iodide* of manganese.

After the subjoined formula, we have administered, in *tuberculosis*, to a large number of patients, the phosphate of manganese, with most favourable results.

℞. Manganesii phosphatis, 3ij.; tinct. cinchonæ. ℥iij.. syr. sarsæ, ℥iv.; mucil. acaciæ, ℥j.; ol. gaultheriæ, gtt. xx. Fiat mistura, cujus sumantur coch. duo vel tria minima bis terve in die.

Or we may administer, under similar circumstances, and to the same amount, the manganese combined with some of the preparations of iron; as in the following:—

℞. Manganesii phosphatis, 3iss.; ferri phosphatis, 3iij.; tinct. calumbæ ℥ij.: syr. tolutan. ℥iv.; ess. gaultheriæ, f. 3j.

These mixtures should be kept in well closed bottles, and as the manganese is not altogether soluble, the medicine should be shaken before being administered.

The malate of manganese is considered by some practitioners, a more eligible preparation, inasmuch as it is quite soluble, and the base of the salt is in the form of proto-oxide, the acid being easily digested.

℞. Manganesii malat., 3ij.; tinct cinch., ℥ij.; syr. simp. ℥iv.; ess limon. f. 3j. Fiat mistura, date coch, parv. mane ac nocte.

The iodide of manganese is an efficient remedy in the treatment of *glandular enlargements*, especially those of the neck, and of the spleen, in constitutional syphilis, and in the anæmia arising from scrofula and from cancerous affections.

It may be administered in the form of pills; or as a mixture in the following formula:—

℞. Manganesii iodid., 3ij.; tinct. cardamom., ℥j.; syr. sarsa, ℥v. Misce. Sumat. coch. parv. bis terve in die.

In a paper published in a late number of the Bulletin de Thérapeutique, M. Petrequin recommends a combination of manganese and iron, as a highly valuable agent in the treatment of disease. He has found these combined medicinal bodies especially useful in blood diseases, such as the chloro-anæmia, after hemorrhage, operations, metrorrhagia, &c. In the chlorosis which appears about puberty, in that also which occurs at the critical period of woman, especially when profuse hemorrhage prevails, and in the depraved state of the blood, which succeeds intermittent fevers, M. Petrequin has found the ferro-manganese preparations of remarkable efficacy.—*American Med. Monthly, March, April, July*, 1855, *pp.* 170, 251, 31.

134.—ON THE ACTION OF QUININE.

By Dr. H. Bence Jones, F.R.S.

The physiological and pathological action of quinine in its passage through the system is given by M. Briquet to the following effect:—In from 2½ to 4½ grain doses, it stimulates the circulation, respiration, and nutrition. It may, in such doses, be said to elevate the principal vital actions. In doses of 9 grains and upwards, this effect is completely changed. In a few hours it produces general debility of the nervous system. For the first hour or two, there is excitement of the brain: congestion of the veins of the pia mater; a feeling of tension and pulsation in the head; sensitiveness to light; beating of the ears, vertigo, tremor of the limbs, palpitation of the heart; internal agitation and general excitement; heat of the skin, frequency of the pulse, and perspiration. After a single very large dose, these symptoms acquire great intensity. Then the most intense agitation, delirium, and even convulsions, are caused by diminution of the nervous power, and cerebral congestion. These symptoms last only for a short period; they are followed by those of the second period, in which there is feebleness and slowness of motion, prostration of strength, total loss of voluntary movements, dulness of sight, of hearing, double vision, amaurosis, aphonia from want of muscular action of the larynx; dyspnœa from paralysis of the eighth pair, and then paralysis of the limbs; diminution of force in the heart and vessels; feebleness of the pulse; more or less

sudden stoppage of the heart's action, with loss of heating power. In small doses in health, quinine causes irritation of the mucous membrane of the stomach. In disease, it may cause inflammation of the stomach. On an ulcerated surface, it causes pain, inflammation, ulceration, and gangrene. It may cause irritation of the urinary organs, and pain and inflammation, like the balsams.

With regard to the pathological action of quinine, M. Briquet considers that it does not act directly on the marsh poison. It does not act on the general state of the organs, or on the blood; but it has especial action on the nervous system, c'est la médecine du quitte ou double, celle que les militaires emploient quand pour couper la fièvre ils avalent une double ration d'eau de vie chaude mêlée de poudre à canon. It does not act by increasing the vital forces or by sustaining them. It is not by a tonic action, or an astringent action, or a stimulant action, but by a sedative stupifiant action. The other remedies for intermittents show the same sedative action; thus Sydenham cured intermittents with opium. Arsenic also, he thinks, acts on the nervous system, depressing the action of the heart, stopping the production of heat, and the functions of life. In small doses it may stimulate; in large doses it distresses. The same double action is perceptible with many medicines, as alcohol, æther, chloroform, nitre, digitalis, opium, and even in the action of heat, cold, light, and electricity, the same double action is observable. The first action, when not excessive, is stimulating. The full force kills. Quinine cures neuralgia as it cures ague, by subduing the action of the nerves, not by any tonic action; opium acts more on the brain than quinine does, and it acts less on the ganglionic nerves than quinine; opium soothes and calms; quinine prostrates and destroys; this is its specific action. It is a palliative remedy, neither acting on the cause of ague nor on the structures generally, but as opium cures delirium tremens, so quinine cures ague.

In the treatment of typhoid fever, when there is excessive prostration, tendency to sleep, or coma, quinine should be avoided. It is most useful when there is excitement, agitation, excited eye and manner, and delirium.

In rheumatic fever, quinine succeeds much better when many joints are affected, rather than when the disease is limited to a single joint; from 15 to 75 grains were given daily to 250 cases. This treatment, with bark instead of quinine, was long since used, and disused. To test the effect, I have given 100 grains of quinine in 24 hours to a patient in St. George's Hospital, with rheumatic fever. No alteration was made in the pulse, no effect was produced on the pain, nor on the swelling of the joints, and on the third day I was obliged to omit the treatment on account of the sickness which ensued.

The following are the general rules established by M. Briquet, for giving quinine in fever:—

First, give each hour or second hour the sixth or twelfth part of the quantity to be taken daily, and leave ten hours' interval without any quinine.

Secondly, gradually increase the dose, until head symptoms, vertigo, and pain, are produced.

In ague, give the quinine so as to produce the maximum effect at the commencement of the febrile action, so as, if possible, to stop the access.

In typhoid fever, give quinine during the night, for the access comes in the afternoon. Quinine, when given in pills, is, in three hours, only one-sixth as active as when given in solution; in five hours, it is four-fifths as active as in solution. 30 grains in pills do not appear in the urine until six or seven hours after they are taken, while 4½ grains, when taken in solution, are detectible in the urine in from three to four hours; 15 grains used as an enema, appear in the urine in 12 hours. To produce any effect, the injection must be repeated many times daily.

Lastly, the absorption of quinine by the sound skin is very doubtful.—*Med. Times and Gazette, June* 9, 1855, *p.* 565.

185.—SULPHATE OF CINCHONIA AS A SUCCEDANEUM FOR THE SULPHATE OF QUININE IN FEVERS.

By Dr. Vahu.

At the time of the discovery of cinchonia, the learned and venerable M. Bally,

physician of the Hotel Dieu, a sagacious and distinguished experimentalist, tried to combat ague with the sulphate of that alkaloid, and obtained, in the intermittent fevers of Paris, a success which proved to him that 4½ or 6 grains of it sufficed often to prevent the return of the attacks. Why the sulphate of cinchonia was soon abandoned for the sulphate of quinia we do not know; perhaps the use of cinchonia was not persevered in long enough. However it be, exclusive preference was given to the sulphate of quinia, a preference which, after the results we have obtained, seems to have been tainted with a little partiality. A more thorough investigation ought perhaps to have been made, in order the better to ascertain whether the effects of the sulphate of quinia, a medicine always very expensive, were in reality superior to those of the sulphate of cinchonia, a much cheaper remedy.

We have then accepted with joy the disinterested offer of M. Delondre, and without desiring to give too premature a judgment upon anything, we state, even now, that, from what we have seen in Africa, we consider the sulphate of cinchonia a succedaneum provided by nature itself for the sulphate of quinia.

We are aware that many eminent men will say, as regards cinchonia, the question is settled; the preference given for so many years to the sulphate of quinia shows enough its superiority. We will answer that one day (not very many years ago) it was maintained that carriages could be moved by steam, when a member of the Institute, very learned otherwise, asserted, basing his views on theories which seemed irrefutable, that the wheels of a locomotive could revolve on themselves, but never could describe a cycloid, and therefore steam locomotion could not be applied to railroads. Since then practical men have answered the illustrious theorist, who is obliged to travel sixty miles an hour when he goes on a journey.

We say then that the use of cinchonia in the treatment of fevers is to be tried by practical men, advantageously situated for that purpose. We say advantageously situated, for the results of the use of this remedy are really conclusive only when they are obtained in countries subject to miasmatic fevers, such as Algiers, for example; and because we, who have practised medicine in Paris for fifteen years, declare that we shall not receive as peremptory trials those made on fever patients in Paris; for there we have no miasmatic ague, and the intermittent fevers of the capital may be arrested and cured by a simple medication, and in the majority of cases without the use of the sulphate of quinia.

We leave our readers to judge of the use we have made of the sulphate of cinchonia in cases of intermittent and remittent fevers in Africa. We give thirteen cases, which might already appear conclusive, but we do not wish to be accused of being too hasty in our judgment; here we can experiment largely and continually. We live in a town of the province of Algiers (Cherchel) where the population is subject during the whole year to miasmatic fevers, but particularly from July to November; colonial villages very near us furnish us besides with a very large number of ague patients. On one side we have acted with the greatest prudence in order not to incur the reproach of endangering the life of the patients, by using a remedy uncertain in its effects; and on the other side, we have acted with the greatest possible certainty, in giving cinchonia only in well marked cases; therefore we have given it particularly to patients attacked for the first time, and whose constitution was not yet deteriorated by the saburral condition which accompanies ague in almost every case. Here the sulphate of quinine, given for eight successive days in very large doses (15 grains and more every 24 hours), produces absolutely no effect, if the treatment has not been begun by an emetic or a purgative. We have here numerous examples of what we advance, in patients who wished to treat themselves without calling a physician, and who imagined they had only to swallow pills of sulphate of quinia to be cured.

As soon as the primæ viæ are cleared, the sulphate acts; we have then placed ourselves, as regards the administration of the salt of cinchonia, absolutely in the same relative position as when we have used the sulphate of quinia.

To abbreviate as much as possible our remarks, we have not spoken of the diet. We must then say once for all that our fever patients are always ordered to take the most nourishing and most tonic food; they eat as much as they like of meat, fish, and vegetables, and drink about the third of a pint of wine a day.

One word more, as regards the meaning of the word succedaneum, as understood by some physicians, who pretend that a medicament can be called succedaneum only when it acts after the specific remedy has failed. It seems to us that to mention such an opinion is to refute it.

Case 1.—*Quotidian Fever.*—11 o'clock in the morning. N———, labourer at Cherchel, has had two fits of fever, which lasted from 11 o'clock in the morning till 4 o'clock in the afternoon. The three intermissions nearly equal. Treated the 20th of September, 1853, the third day of the disease. Marked gastric disturbance.

Sep. 20th, at 8 in the morning: Emetic; Ipecac. gr. xv.; tartar emetic, gr. jss. No exacerbation. The 21st: gr. xii. of the sulphate of cinchonia, in the form of aqueous solution, at 7 o'clock in the morning. The exacerbation precedes the usual hour. Chills at half-past 9 as violent as the preceding; vomiting follows the exacerbation; the heat is not so great and lasts a shorter time than the preceding day; no sweat. The 22nd: gr. xii. at five o'clock in the morning; no exacerbation, no heat, no cephalalgia. The 23rd: gr. xii. at 5 o'clock in the morning; nothing to record, no chills, no heat, no cephalalgia. The 24th: gr. ix. at five o'clock in the morning; nothing to record. The 25th: more cinchonia; wine of gentian as a tonic (extract of gentian 3j.; red wine ℥iij. ℈). No return of the exacerbations, and the patient resumes his work.

Case 2.—*Remittent Fever.*—B——, gardener in the neighbourhood of Cherchel, has been ill several days, cannot exactly tell the period of the first invasion of the disease. Treated for the first time, September 29th, 1853. Marked gastro-intestinal derangement. The 29th: Ipec. gr. xv.; tartar emetic, gr. jss. The 30th: Sulphate of soda, ℥ij. Oct. 1st, at 8 o'clock in the morning: gr. viiss. of sulphate of cinchonia; the dose repeated at 11, and at 2 o'clock in the afternoon. Exacerbation at 4 o'clock in the evening: it is not so strong; cephalalgia less violent. The fit lasts only two hours instead of four.

Oct 2nd: gr. viiss., repeated three times, and at the same hours as the day before. A little cephalalgia only from 4 to 5 in the evening. Oct. 3rd: gr. viiss., at 8 o'clock in the morning; at 3 o'clock in the evening, gr. xii. Cephalalgia at 8 o'clock in the evening; it lasts the whole night. No tinnitus aurium, notwithstanding the xixss. grains taken. Oct. 4th: on account of the cephalalgia, which lasted all night, given gr. viiss. of the sulphate, at 5 o'clock in the evening; and gr. xii. at 8 in the evening. At 9 o'clock in the evening, slight headache, which lasts half an hour; perspiration, which continues for three hours; no tinnitus aurium.

Oct. 5th: gr. xv. of the sulphate, at 3 o'clock in the evening; no exacerbation, no cephalalgia; sleeps well the whole night. Oct. 6th: gr. xv. at 3 o'clock in the afternoon; at 9 o'clock in the evening, cephalalgia with tinnitus aurium; heat that lasts one hour; no chills; sleeps all night. Oct. 7th: xx. gr. at 3 o'clock in the afternoon; nothing to record. Oct. 8th, 9th, 10th, 11th, and 12th, nothing.

Case 3.—*Tertian Fever.*—Days constant, 8 o'clock in the morning. B——, farmer, has been in Africa for two years; had, six months ago, a quotidian fever, treated by sulphate of quinia, and cured; has had three exacerbations before the treatment began, on the 6th of October, 1853.

Oct. 6th: vi. gr. of sulphate of cinchonia, at 4 o'clock in the morning; at 9, one hour after the usual time, heat for one hour, followed by abundant perspiration; sleeps from 11 o'clock in the morning till 12; no traces of exacerbation. Oct. 7th: at 4 o'clock in the morning, xv. gr. of sulphate of cinchonia; no exacerbation; no cephalalgia. The sulphate was given that day, on account of the gravity of the exacerbation of the day before, lest the fever should become remittent. Oct. 8th (day of exacerbation): at 4 o'clock in the morning, vii. gr. of the sulphate; no exacerbation. Oct. 9th: nothing. Oct. 10th: vi. gr. at 4 o'clock in the morning; no exacerbation. Oct. 11th and 12th, nothing.

Case 4.—*Quotidian Fever.*—10 o'clock in the morning, L——, carrier, relapse, has been treated for the same disease, from the 10th to the 27th of September, with sulphate of quinia. Treated for the first time by us, October 7th, 1853. Marked gastric derangement. Draught composed of ipec. gr. xv., tartar emetic gr. jss. Oct. 8th: at 6 o'clock in the morning gr xii. of sulphate of cinchonia. *From* half-past 3 o'clock in the afternoon till 7 in the evening, great cephalalgia,

no heat of the skin, no sweat. Oct. 9th: at 11 o'clock in the morning, gr. xv. of the sulphate, no exacerbation, no cephalalgia. Oct. 10th: cephalalgia from 6 to 8 in the morning; xv. gr. of the sulphate at 11 o'clock in the morning; cephalalgia less intense than the preceding days, from 4 to 6 in the morning; no heat, no sweat. Oct. 11th: gr. viiss. at midnight, and gr. viiss. at 2 o'clock in the morning; cephalalgia less intense than the preceding days, from 4 to 6 o'clock in the morning; no heat, no sweat. Oct. 12th: gr. viiss. at midnight, as much at 2 in the morning; nothing. From the 13th to the 20th of October, nothing.

Case 5.—*Tertian Fever.*—Days constant, 7 o'clock in the morning, D——, muleteer, has never been sick since his arrival in Africa. Three exacerbations before treatment. Twice the fever came on at 7 o'clock in the morning, and left at 2 in the afternoon; the third exacerbation commenced at 4 in the morning.

The three stages are well characterized; no continued cephalalgia. The patient has had recourse to no treatment. Oct. 12th: gr. xv. of sulphate of cinchonia, at midnight. Complete absence of exacerbation. Oct. 13th, nothing. Oct. 14th: gr. xv. at midnight; no exacerbation. Oct. 15th, 16th, 17th, 18th, 19th, and 20th, nothing.

Case 6.—*Remittent Fever.*—Marked chills at 2 o'clock in the afternoon. A——, farmer, has never been ill during eighteen months that he has lived in Africa. Three days ago he was attacked with remittent fever, accompanied with obstinate cephalalgia. Oct. 16th: at 9 o'clock in the morning, draught composed of ipec. gr. xv., and tartar emetic gr. jss., to combat a well marked saburral condition; at 11 o'clock in the morning of the same day, xv. gr. of the sulphate of cinchonia, which are almost immediately thrown up by the efforts at vomiting induced by the ipec. I had prescribed cinchonia, to be administered only after the effect of the emetic had passed off entirely. The exacerbation, characterized by chills, comes on at 45 minutes past 1 o'clock in the afternoon; the cephalalgia, less violent than the preceding day, continues the whole of the day and night. Oct. 17th: gr. xv. at 11 o'clock in the morning; no cephalalgia, no chills. Oct. 18th: gr. xx. at 11 o'clock. Nothing. Oct. 19th: gr. xx. at 11 o'clock. Nothing. From the 20th to the 24th of October, nothing.

Case 7.—*Remittent Fever*—R., farmer, had, two months ago, irregular fits of fever, which he treated by pills of the sulphate of quinia; has not felt anything since that period. Three days ago, he was attacked with remittent fever; treated for the first time, Sept. 21st, 1853. Sept. 21st, on account of the concomitant gastric disturbance, given a draught composed of ipec. gr. xv. and tartar emetic gr. jss. Cephalalgia not so great. Sept. 22nd: at 8 o'clock in the morning, gr. xii. of the sulphate of cinchonia; little cephalalgia until three o'clock in the afternoon, when it increases, and lasts until the 23rd, at 6 in the morning. Sept. 23: gr. viiss. at 8 o'clock in the morning, and viiss. at 3 o'clock in the afternoon. Slight cephalalgia from 4 to 6 o'clock in the evening. Sept. 24th: gr. viiss. at noon; no headache, no heat. Sept. 25th: gr. viiss. at noon; nothing. From the 26th to the 30th of September, nothing.

Case 8.—*Tertian Fever.*—Days not constant, one o'clock in the afternoon. Diarrhœa as complication. B———, gardener, has had diarrhœa for a month. The fever is characterized by five exacerbations, which lasted from one o'clock in the afternoon till six o'clock in the evening. The period of heat is longer than the two others. Sept. 20th: ℥j. sulphate of soda at eight o'clock in the morning. Sept. 21st: gr. xii. of sulphate of cinchonia, at nine in the morning; the exacerbation occurs at half past one in the afternoon, half an hour later than usual. The sweat is less abundant, and that period of the fit lasts a shorter time than usual. The exacerbation is quite over at five in the evening. Sept. 22nd: nothing to record. Sept. 23rd: xii. gr. of sulphate of cinchonia, at nine in the morning; exacerbation at ten o'clock in the morning; it begins with the heat and ends by a great perspiration, at a quarter past eleven; duration, one hour and a quarter; comes on three and a half hours sooner. Sept. 25th: gr. xii. at three o'clock in the morning; no exacerbation at one in the afternoon, the usual time of the fever; a slight cephalalgia, which lasts one-quarter of an hour; since then, nothing; a good night. Sept. 27th: gr. ivss. at three in the morning; nothing. From Sept. 29th to Oct. 6th, nothing. Oct. 7th: at one o'clock in the afternoon, violent cephalalgia until five in the evening. Oct. 8th: cephalalgia immediately

after the administration of the xii. gr. of sulphate of cinchonia, at nine o'clock in the morning; it lasts an hour. Oct. 9th: xii. gr. at five o'clock in the morning; cephalalgia from one o'clock in the morning till eight. Oct. 10th: gr. xii. at five in the morning; nothing. From the 11th to the 18th of October, nothing.

Case 9.—*Tertian Fever.*—Days constant, 11 o'clock in the morning. G., shoemaker, three exacerbations before the treatment; three well characterized stages; total duration from 11 o'clock in the morning till 4 o'clock in the afternoon; from that moment no cephalalgia. Sept. 21st: ℥jss. of sulphate of soda, to remedy the gastro-intestinal derangement. Sept. 22nd: gr. xii. of sulphate of cinchonia, at 9 o'clock in the morning. At 11 o'clock a little cephalalgia; no heat, no sweat. Sept. 23rd: nothing to record. Sept. 24th: gr. xii. at 7 o'clock in the morning; no exacerbation. Sept. 25th: nothing to record. Sept. 26th: gr. xii. at 7 in the morning; no exacerbation. Sept 27th, 28th, 29th, and 30th, nothing.

Case 10.—*Remittent Fever.*—F., farmer, had, two years ago, for ten days, a remittent fever, for which he was treated with pills of sulphate of quinia. Sept. 21st: ℥jss. of sulphate of soda. Sept. 22nd: the tongue remains white, and the coating is as thick as the day before. Ipec. gr. xv. and tartar emetic gr. jss. Sept. 23rd: gr. xii. of sulphate of cinchonia, at 5 in the morning; thrown up immediately. Cephalalgia the whole of the day. Sept. 24th: gr. xii. at 5 in the morning; tinnitus aurium at 8 o'clock in the morning; chills at 3 o'clock, and until 4 o'clock in the afternoon; no heat; cephalalgia from 4 o'clock throughout the night. Sept. 25th: gr. viiss. at 5, and gr. viiss. at 11 o'clock in the morning. Sept. 26th: constant headache during the whole of the 25th, but it is not so great to-day. Spent a tolerably good night. Sept. 26th: in the morning there is less cephalalgia. Sept. 27th: gr. viiss. at 5 in the morning, and repeated at 11 in the morning. The headache is decreasing in intensity; no chills, no heat, no sweat. Sept 28th: gr. vi. at 11 o'clock in the morning; nothing. Sept. 29th: gr. vi. at 11 o'clock in the morning; nothing. Sept. 30th, and Oct. 1st and 2nd: gr. vi. at 11 o'clock in the morning; nothing. Oct. 3rd: wine of extract of gentian. Oct. 4th: cephalalgia from 2 o'clock in the afternoon till the next day. Oct. 5th: gr. vi. at 11 o'clock in the morning; cephalalgia from 2 o'clock in the afternoon till 6 o'clock in the evening. Oct. 6th: gr. viiss. at 11 o'clock in the morning; cephalalgia from 3 till half-past 4 in the evening; not so intense as that of the day before. Oct. 7th: viiss. gr. at 11 o'clock in the morning; nothing. From the 8th to the 15th of October, nothing.

Case 11.—*Intermittent Fever.*—D———, political exile, at Cherchel, carried on the trade of a joiner when in France; has never been sick for twenty months, that he is in Africa. Attacked with fever Oct. 6th, 1853. The first exacerbation was ushered in by chills; the following days a continual heat, greater at 5 o'clock in the morning, and lasted until the next morning, with the same intensity. Has, before treatment, twice taken emetics, which produced abundant vomitings, and twice gr. viiss. of sulphate of quinia, on the 10th and 11th of October. Consulted me on the 16th of October; marked gastric disturbance, which calls for ipecac. gr. xv. and tartar emetic gr. jss., given at 8 o'clock in the morning. At noon, cephalalgia; at 5 o'clock in the evening, heat, until 7. Remission until midnight; at midnight, heat and cephalalgia until 5 in the morning.

Oct. 17th: gr. xii. of the sulphate of cinchonia, at 8 o'clock in the morning. At noon, slight cephalalgia, followed by abundant sweat; at night, no thirst, but constant watchfulness, without chills, nor heat, nor sweat. Oct. 20th: gr. xii. of the sulphate at 8 o'clock in the morning; nothing. From the 21st to the 30th of October, nothing.

Case 12.—*Quotidian Fever.*—6 o'clock in the evening. V———, terrace-maker, has been in Africa four months; was attacked with dysentery in the month of August, 1853; was then ill for eight days; attacked with quotidian fever on the 24th of October; he has had six exacerbations, has consulted me only on the 30th of October. Oct. 30th: marked gastric intestinal derangement. Emetic, composed of ipecac. and tartar emetic. Oct. 31st: ℥ij. of sulphate of soda, in the morning; gr. xii. of sulphate of cinchonia, at 2 in the afternoon; no exacerbation. *Nov. 1st:* gr. xii. of sulphate, at 1 o'clock in the afternoon: still no

exacerbation. Nov. 2nd and 3rd: gr. viiss. of sulphate, at 2 in the afternoon; nothing. Nov. 4th, 5th, 6th, 7th, and 8th, nothing.

Case 13.—*Tertian Fever.*—Days constant, in October. Days not constant, in November. Exacerbations at 6 o'clock in the evening. R———, farmer, was attacked with tertian fever, Sept. 30th. The fever lasted eight days. Took, then, sulphate of quinia, and felt well for three weeks. Attacked with tertian fever, Oct. 30th; did not this time take any sulphate of quinia; consulted me only on the 4th of November, after two complete exacerbations. Nov. 4th: gastric derangement. Draught composed of ipec. and tartar emetic. Nov. 5th: the exacerbation is expected at 6 in the morning; xii. gr. of the sulphate of cinchonia, at 2 o'clock in the morning. The exacerbation comes on at 5 in the morning; it is not so strong as the preceding day, the cold stage especially; the period of sweat less prolonged; it is all over at 9 o'clock in the morning. No cephalalgia. Nov. 6th: nothing. Nov. 7th: gr. xii. at midnight; no exacerbation. Nov. 9th: gr. xii., at midnight; nothing. Nov. 15th, 17th, and 19th, no exacerbation.—*Annuaire de Medecine*, 1855.—*American Med. Month. June*, 1855, *p.* 460.

136.—*Some Experiments on the Smoke of Tobacco.*—In Froriep's Journal, of a recent date, an interesting article has been published on the habit of tobacco smoking, and on poisoning by nicotine. Amongst the facts there mentioned, are the experiments instituted by M. Malapert, a pharmacien, of Poitiers. His intention was to ascertain the exact quantity of nicotine absorbed by smokers, in proportion to the weight of tobacco consumed.

The apparatus used consisted of a stone jar, in which the tobacco was made to burn connected with a series of bottles communicating by tubes. The bottles were either empty, or contained some water mixed or not with a little sulphuric acid. From a few experiments, it was found that, in the smoke of tobacco extracted by inspiration, there is ten per cent. of nicotine. Thus a man who smokes a cigar of the weight of seventy grains, receives in his mouth seven grains of nicotine mixed with a little watery vapour, tar, empyreumatic oil, &c. Although a large portion of this nicotine is rejected, both by the smoke puffed from the mouth, and by the saliva, a portion of it is nevertheless taken up by the vessels of the buccal and laryngeal mucous membrane, circulated with the blood, and acts upon the brain. With those unaccustomed to the use of tobacco, the nicotine, when in contact with the latter organ, produces vertigo, nausea, headache, and somnolence; whilst habitual smokers are merely thrown into a state of excitement, similar to that produced by moderate quantities of wine or tea.

From further investigation it was found that the drier the tobacco the less nicotine reaches the mouth. A very dry cigar, whilst burning, yields a very small amount of watery vapour; the smoke cools rapidly, and allows the condensation of the nicotine before it reaches the mouth. Hence it comes that the first half of a cigar smokes more mildly than the second, in which a certain amount of condensed watery vapour and nicotine, freed by the first half, are deposited. The same remark applies to smoking tobacco in pipes, and if smokers were prudent, they would never consume but half a cigar or pipe and throw away the other. Smoking through water, or with long tubes and small bowls, is also a precaution which should not be neglected.—*Lancet, Sept.* 1, 1855, *p.* 200.

137.—CLINICAL REMARKS ON THE PREVAILING DISEASES.

By Dr. Robert Barnes, London.

[In those cases of disease, which terminate in death, we have no difficulty in referring them to their particular class in the nosological system, but in the case of those lighter affections, which end in recovery, we can not always say to which class they belong: hence the necessity for the subdivisions depending on the groups of symptoms which are here adopted.]

A careful inspection of the tables, aided by the recollection of the leading clini-

cal particulars, leads me to infer that the great character of the epidemic constitution of the past month has consisted, not in the operation of any poisonous element, or *leaven* foreign to the atmosphere, but in the varying influences of great heat and comparative cold, of dryness and wet; in short, in the agency of atmospheric conditions, which may be expressed by the language of the thermometer, the barometer, the hygrometer, and the anemometer.

That in all the forms of disease caused by these meteorological conditions, a poisonous element is concerned, and works in the human body, I do not doubt, but that poisonous element is not derived from the atmosphere; it arises from the repression of various excretions, particularly those of the skin, in consequence of which certain noxious materials seeking elimination are thown back into the circulation.

I do not, of course, forget that many other morbific causes, some casual and some constant, have been in operation amongst the classes which resort to our hospitals. Vitiation of the air from over-crowding, bad ventilation, and other causes, bad drainage, bad water, and bad food, have, no doubt, in many cases, had their share in the production and aggravation of the maladies recorded in this memoir. But inasmuch as these causes are at all times more or less active, whilst the characters of the prevalent diseases change, it must be concluded that those meteorological conditions to which I have referred, are more especially to be connected with the forms of disease now described.

I proceed to trace the various phases under which the epidemic influence may exhibit itself.

The first and most powerful impression, struck by thermometrical and other ordinary vicissitudes of the atmosphere, is undoubtedly made upon the skin and lungs. The other parts of the system are affected secondarily. We may conclude that some perversion of, or interruption to, the normal functions of the skin and lungs is produced by the direct action of the atmosphere. It would be out of place to dwell upon the nature and importance of those functions; it is enough to point out that, if interrupted, certain effete matters, solid, liquid, and gaseous, are retained in the system. So retained and returned into the blood, they operate as poisons, disorder the economy, and induce pathological phenomena. The suppression or impairment of the eliminative function of the skin and lungs, throws increased labour upon the other excretive organs; those have not only to discharge their proper refuse, but that also of the skin and lungs. Together with this increased amount of labour, they are subjected to direct irritation by matters possessing noxious properties being brought to them in the blood. Under the operation of these two causes, it will be expected that the internal excreting organs should frequently be diseased. Reflection upon various modes and degrees in which the epidemic influence may have acted, the compensating or alternating activity of the excreting organs, and the various susceptibilities of individuals, will also suggest the explanation why it is that the morbific epidemic influence does not act uniformly, and determine constant pathological phenomena. In the majority of persons the unwonted strain and irritation fall more especially upon the intestinal canal; in others, the stomach is affected; in others, the kidneys. I have observed instances in which it appeared to me that the bladder and urethra were affected, possibly from contact with irritating urine. The uterus is certainly liable to suffer, not only when the impression strikes at the menstrual period, but also during the inter-catamenial periods. The salivary glands also and the tonsils are very susceptible to engorgement and subacute inflammation.

Occasionally the morbid impression does not induce any marked secondary disorder in the internal organs at all; it appears to be exhausted in the structures that received the first impression. Thus we see pulmonary catarrh and various forms of rheumatism and neuralgia. But more commonly the effects are not confined to any particular organ; the whole economy is disturbed, and many organs are notably diseased simultaneously. Thus we often observe rheumatism, and catarrh of the whole respiratory and alimentary mucous tracts, as well as disorder of the kidneys, in the same individual.

I pass by, upon this occasion, any special reference to cases belonging to the sporadic classes, although many of them invite to clinical analysis.

Let us examine the particular forms which the zymotic affections have pre-

sented. A glance at the tables reveals the remarkable fact that a very large proportion of the whole number of cases belongs to the zymotic class. This is the more striking because it refers to a period which is, as we learn from the Registrar-General's returns, one of comparative healthiness. It serves to place in strong relief the importance of studying the current epidemic constitution.

The most striking and the most common form of zymotic disease is that of diarrhœa. In 37 out of 106 cases of the current epidemic, intestinal catarrh existed in the simple form.

The first symptoms frequently appear gradually, or suddenly, without being preceded by any cause or external impression to arrest the observation of the patient. Sometimes they are referred to cold or wet. Shivering is often one of the earliest symptoms; then flushes of heat; skin, often dry by day, perspires freely at night; pains are felt in the joints and limbs; the tongue is sometimes much furred, yellow, and clammy, but much more frequently clear, moist, and more vividly red than natural; vomiting is very common, the matter vomited being watery, tinged with bile, and mixed with mucus; the bowels are almost always loose, the flux being watery, mucous, or bloody, and generally, but not always, tinged with bile. When bile is not present it may be conjectured with more probability that the duodenum is congested so as to obstruct the flow of bile into the intestine, than that the secretion of bile is arrested.

Pain in the stomach is generally complained of, but sometimes there is spasm, and both the stomach and intestinal canal are so irritable as to reject everything that is swallowed. The urine in many cases is thick, loaded with mucus, and sometimes tinged with blood. Fever and prostration testify to the general disturbance.

Cases in which the symptoms set forth are present may be regarded as examples of gastric and intestinal catarrh. The condition of the alimentary mucous membrane is one of subacute inflammation or congestion, and the effusion of watery mucus, sometimes attended with blood, in considerable quantity, is the mode adopted by nature for relief.

But in a large number of cases the respiratory mucous tract is at the same time affected in a similar manner. In no less than forty instances, catarrh of the bronchial mucous membrane existed alone, or complicated with other forms. There is, in addition, cough, attended by copious expectoration, and sometimes hæmoptysis. The affection of the respiratory mucous membrane is commonly universal: the larynx, trachea, and bronchi are simultaneously attacked. The condition, although severe, can hardly be called bronchitis: it is one, as I conceive, quite analogous to that of the intestines; there is congestion, and perhaps subacute inflammation. This is what I mean to express by pulmonic and tracheal catarrh.

I have also observed cases in which the uterine mucous membrane was similarly affected. Copious leucorrhœa, preceded in a few cases by hemorrhage, has indicated, to my mind, an uterine catarrh, arising under the same circumstances as the intestinal affection.

If the *contre-coup* of the impression made upon the skin and lungs is not felt in the intestinal canal, then it may be carried with more danger to the kidneys. In the tables, there is one case of congestion or inflammation of the kidney from this cause, resulting in general dropsy and albuminuria.

In three cases, whether from intensity of the epidemic influence, or unusual susceptibility, the diarrhœa and bronchial catarrh have not been the most prominent symptoms. The fever has been so great as to assume a typhoid aspect; the intellect has been oppressed; prostration complete; tongue dry and furred. I have concluded that these were not cases of pure fever. Although severe, and in two children even ending fatally, they wanted some of the pathognomonic characters of fever. It appeared to me that the typhoid symptoms were due to the presence of the excessive quantity of toxical materials in the circulation. A young man whom I admitted as an in-patient was at first considered to be suffering from fever. The delirium and other typhoid symptoms were accompanied by bronchitis, which in various parts of the chest passed into pneumonia, and by diarrhœa. His condition at the time of admission appeared hopeless; but by subjecting him, in the first instance, to the same treatment as that followed in simple intestinal and pulmonic catarrh, adding blisters, and early resorting to quinine and nutritive diet, he recovered favourably.

In a certain proportion of cases, the intestinal irritation lapses into dysentery, marked by tenesmus and mucous and bloody stools. A considerable number are liable to relapse, after being apparently cured. No doubt the same causes act again, and the yet irritable mucous membrane readily rebels against the inappropriate food in which people who think themselves recovering are apt to indulge.

Pains in the stomach and a disposition to relaxed bowels are apt to persist for two or three weeks after apparent recovery.

I have not yet observed any case of death in adults.

In children the affection is far more dangerous. The most common form is that in which both the alimentary and respiratory tracts are involved. The fever is always more intense, the skin generally dry, and the prostration greater.

The various forms of rheumatism and neuralgia do not call for particular description. Facial neuralgia, with swelling, has been one of the most common.

Diagnosis.—It is clear that the diarrhœa of the present season, especially if viewed in relation to the other forms assumed by the epidemic, is a very different affection from the choleraic diarrhœa of last autumn. This should be borne in mind in reading the Registrar-General's Returns of this year and the last. The disposition to attack all the mucous membranes is a striking and peculiar character.

Treatment.—The principle of treatment I have adopted is based upon the etiological and pathological views detailed. In applying that principle I have been guided more by the view I have taken of the pathognomonic features of the epidemic in the aggregate than by the particular manifestations of the epidemic influence observed in individual cases; and the treatment, although simple and varying very little in different cases, howsoever various the symptoms might appear, has been generally successful.

The great indications are to restore the functional activity of the skin, and to avoid adding to the irritation of the mucous tracts. Warm-baths, especially in children, give great and often speedy relief. Nothing but bland fluids should be taken into the stomach. The great object is to give it rest. The medicines I have used are, solution of nitrate of ammonia, half an ounce; mint-water, half an ounce; nitrate of potash, ten grains; and five grains of Dover's powder, every five or six hours. When there has been much irritability of the stomach, I have added three minims of hydrocyanic acid to the dose. It rarely happens that rest and observance of this treatment will not arrest the fluxes and restore the action of the skin. But care in diet is important for some days afterwards. After the arrest of the diarrhœa I have given acetate of ammonia, with infusion of gentian or quassia, commonly adding either ten minims of chloric ether, or three minims of hydrocyanic acid. This mixture acts remarkably well in restoring tone to the mucous membrane, and completing the recovery. I do not find that astringents, such as logwood and chalk mixture, answer well in the first instance; sometimes they increase the pain, and add to the severity of the symptoms generally.

I have already stated that I have not found it necessary to modify this treatment materially in the different forms of the disease. It is equally successful whether diarrhœa, pulmonary catarrh, rheumatism, or neuralgia, be the *prominent* symptom.

It may be observed that the history of these cases completely subverts the common prejudice that the diarrhœa is caused by eating fruits and vegetables. An irritating diet may affect the intestinal canal, but it cannot account for the pulmonary, renal, and rheumatismal symptoms.—*Lancet, Sept.* 8, 1855, *p.* 214.

188.—*On the Employment of Tannin and Tannic Acid.*—Dr. Berthold draws attention to the great efficacy of a very simple mode of treating *chilblains*, and preventing their relapse. Twelve drachms of bruised galls are boiled for a quarter of an hour in half a pint of water, and strained. The fluid is applied to the parts two or three times daily for a quarter of an hour. The itching and burning diminish in two or three days, and ulcers heal in about a week. The same effect results from an infusion of oak bark, made with ℔j. of water to ℔j. of bark, and standing twenty-four hours. The solution of half an ounce of tannic acid in *half a pound of water* may also be used. For preventing the occurrence of relapse,

any of these may be employed once a day, or if the chilblains are not broken, tincture of galls may be used.

Dr. Bühring speaks highly of the power of tannin in *arresting hemorrhage*, when applied thickly on a piece of soft sponge to the bleeding part. No pain or irritation results, the healing process is expedited, and the firm plug that is formed offers great security against future bleeding. Dr. Mund also states its styptic power is remarkable, especially in epistaxis and hemorrhage after tooth-drawing. A plug of charpie is moistened in water, and dipped in the powder.

Its use, however, is far from being limited by its styptic agency, it being applicable in most disordered secretions dependent upon debility of vessels. Thus, in *chronic gonorrhœa*, ʒj. of tannin dissolved in four ounces of water, with the addition of ʒi. of gum arabic, forms a good mixture for internal use, as well as an injection, and the affection soon yields. The same mixture is an excellent one in *chronic diarrhœa*, and the third stage of dysentery, although it is taken unwillingly by the patients. It is also useful in the third stage of *pertussis*, given in the following form:—℞. Tannin gr. vi., ext. bellad. gr. i., ext. cicutæ gr. iv., infus. sennæ c. ʒii., aq. fœnic., syr. althæ. aa ʒj. A spoonful every two hours. Dr. Kipp testifies to the great utility of tannin in menorrhagia, and excessive fluor albus; a continued use of it for two or three months, in increasing doses, has in many cases completely succeeded, when organic mischief has not been present. Sometimes oppression of the stomach results from its use, which is usually relieved by temporary suspension, diminution of the doses, or the addition of aromatics. The dyspeptic condition, which results from the loss of blood, is relieved by its use, the loaded tongue cleaning, and the appetite and stools returning. He generally gives it in the form of pills, of one to five grains, three or four times a day, adding rhubarb or aloes in the event of constipation occurring, a due regulation of the bowels being essential during its employment. He also uses it with advantage externally in various forms of ophthalmia, as that of infants, catarrhal ophthalmia, &c., increasing the dose from three to ten grains per drachm.—'Buchner's Repert.' —*Med. Times and Gaz., Sept.* 15, 1855, *p.* 271.

139.—INFLAMMATION OF THE OS AND CERVIX UTERI.

By Dr. E. Rigby, Senior Physician to the General Lying-In Hospital.

In treating the subject of inflammation of the os and cervix uteri, I must beg it to be remembered that I do not feel justified in looking upon it commonly as a primary idiopathic complaint; but rather as one which is of a secondary character, or, in other words, symptomatic of some cause the presence of which has induced it. I can no more look upon inflammation of the os and cervix uteri as a primary disease, causing derangement of the general health, &c., than I can upon a gouty toe, a rheumatic knee-joint, or enlarged strumous gland. Most of these uterine affections are the local manifestations of some general derangement, but which, in their turn, react as causes producing their own set of sympathies and effects. The female generative organs, situated at the lower part of the trunk, supporting the chief weight and pressure of the intestines, and subject to great periodic alternations of vascularity, not to mention the wonderful changes they undergo during pregnancy and parturition, are rendered peculiarly disposed to be affected by any morbid action which may occur, especially in the great machinery of the chylopoietic system, and liable to be fixed upon in the various blood diseases, to localize their energy and expend their virulence upon. It will therefore be seen, that there are few affections of the general health in a female in which the generative system is not more or less affected or involved; and, although these local affections which in the first instance are mostly effects of deranged health, react, and produce in their turn considerable sympathetic derangement; yet it must ever be borne in mind that, unless a distinct local cause be present, they must be looked upon as "the local manifestations of a general derangement," in order that we may form correct and rational ideas respecting their nature and treatment.

I cannot understand on what grounds it can be justifiably asserted that the uterine organs follow a different law in this respect to any other organ or parts of

the body. If we take the various morbid appearances which the mouth presents, as regards the tongue, fauces, tonsils, &c., we do not usually look upon these as purely local affections producing symptomatic derangement, but as the local effects and evidences of a general condition of health, and should condemn the treatment which advocates mere local applications in these affections as highly empirical and unscientific.

Inflammation of the os and cervix rarely occurs as an acute affection, but, in by far the majority of cases, in a subacute or chronic form. It is marked by continued aching pain about the lower part of the pelvis, extending to the back, and much increased by the erect posture and by exercise, and especially aggravated by sitting down suddenly on a hard seat, by the passage of hardened fæces, and particularly by sexual intercourse. It is usually attended with a sense of heat, weight, and throbbing, with more or less irritability of the bladder. At first, the pain is not constant, but is allayed by rest; so that she is perfectly easy in the recumbent posture, but by degrees it scarcely ever leaves her, and she gradually becomes aware of sharp darting pains, like a sudden prick or stab, flying through the pelvis from time to time.

A white creamy discharge from the vagina accompanies this affection, and was first pointed out by Sir C. M. Clarke as diagnostic of inflammation of the cervix uteri. It "is opaque, of a perfectly white colour; it resembles in consistence a mixture of starch and water made without heat, or thin cream. It is easily washed from the finger after examination, and is capable of being diffused through water, rendering it turbid."

Inflammation of the cervix uteri is mostly accompanied by considerable derangement of the digestive organs, and by an atonic state of the system generally. The face is pale, or perhaps sallow, the pulse is feeble and irritable, the tongue pale and flabby, or red, dry, and rough, from the presence of uterine irritation; and the vital powers are depressed.

It is caused by whatever tends to produce or keep up uterine congestion. Constipated bowels and torpid liver are decidedly two of the most frequent general causes of this affection. An intestinal canal, loaded with large fæcal accumulations, not only obstructs the returning circulation from the pelvic viscera, as is so commonly seen by its effects in producing an hemorrhoidal habit, but by pushing down the uterus into the pelvis lower than is natural for it, its venous circulation becomes also impeded, and considerable engorgement of the organ is produced. Thus it will be intelligible how, in atonic habits, a slight degree of prolapsus uteri will frequently produce this condition of the cervix; and hence it is that inflammation of the cervix often follows an abortion, especially if she has got up too soon after its occurrence. The patient, weakened by the loss, has risen from the recumbent posture while the uterus was still large and heavy, and the soft parts too relaxed to give it the proper amount of support.

As in dysmenorrhœa the local congestions, whether uterine or ovarian, are sometimes a result of an impure or morbid condition of the circulation, so here also we occasionally meet with inflammation of the cervix as the local manifestation of a general cause, resisting ordinary treatment, although fairly amenable to such as is indicated by the nature of the general affection.

Considering the amount of general derangement of health which attends a case of ordinary inflammation of the os and cervix uteri, it is highly desirable to premise some doses of alterative and laxative medicine, and thus to clear out the bowels, &c., before proceeding to any special local treatment. A dose of blue pill for two or three successive nights, and a brisk laxative the following morning, frequently produce such a change in the general symptoms as to materially alter the severity of the uterine affection. By restoring the liver to healthy action, and clearing the intestines of a large quantity of fæculent matter, the abdominal circulation becomes greatly relieved, and local congestion proportionably diminished. Indeed, we can scarcely be said to have ascertained the real extent of the local affection, until this treatment has been premised. If the os uteri still remains much congested and swollen, and, upon examination with the speculum, appears of a dark red colour, it is better at once to scarify the part, as being the quickest and most effective *mode of* relieving the patient. The blood starts at the slightest touch of the *scarifying lancet*, and two or more ounces are quickly taken away, with immediate

diminution of her symptoms. The horizontal position must be strictly enforced, so as to give the empty vessels time to lose their dilated condition.

If the disease has assumed more of the chronic character, and therefore the glandular tissue of the cervix more involved, leeches are generally preferable. After the bleeding has ceased, the vagina should be repeatedly washed out with a warm decoction of poppies.

Besides the alterative and laxative medicines to which I alluded, she should take some alkaline mixture to improve the state of the urine, which is usually very acid under these circumstances, and thus allay any disposition to irritation of the bladder. No combination is better than small doses of the bicarbonate and nitrate of potass, and she may continue to use this after meals, even when she has commenced the use of mineral acids and tonics. The nature of the constitutional symptoms will point out how far the alterative and tonic plan of treatment must be modified; but the general indications are to restore the digestive organs to a healthy condition; to relieve local congestion, and invigorate the system.

If the glandular tissue of the cervix be much implicated, the induration of the part very considerable, and the lancinating pains frequent and severe, the above treatment must be more or less modified. It is generally preferable to apply leeches to the anus, not only to relieve hemorrhoidal congestion, which is usually present, but in order to avoid the irritation and even slight inflammatory action, which the bites are apt to produce.

A suppository of diacetate of lead and conium is a useful application in these cases; and, where the patient is too much reduced to bear leeches, becomes a valuable substitute for them. For the same reason the well-known lotion of Goulard and decoction of poppyheads is useful in these cases, and, when retained in the vagina for some minutes, produces much relief to the patient's suffering.

Mrs. H., aged 27, young looking, diminutive, delicate, married eight months.

March 30, 1847. Complains of pains in the loins and lower part of the abdomen and back, increased by standing and exercise; albuminous discharge; tongue and bowels natural; suffers from dysmenorrhœa; has lately been suffering from neuralgic headache.

One month after marriage was hurt by the pummel of her saddle, and aborted a month afterwards. She has had a second abortion two months ago, apparently at the same period of pregnancy.

Examination per Vaginam.—Uterus natural; os and cervix extremely tender, and throbbing distinctly. Some leeches were applied immediately; they filled in ten minutes, and bled freely. Acid. nitro-muriat. ex infuso gentianæ comp. ter die. Liquor plumbi c. decocto papaveris pro lotione.

April 8. Relieved, but not sufficiently so. Is suffering from arthritic pains of her limbs; the urine is turbid, &c. ℞. Pulv. guaiaci, magnesiæ, āā gr. x. M. Ft. pulv.: om. mane sumend. ℞. Acidi hydrochlor. dil., acidi nitrici dil. āā 3i., extr. taraxaci ʒi., decoct. sarzæ comp. ʒviij. M. Ft. mist. Sumat cochl. magn. ij. ter die.

30. Some more leeches were applied to the os uteri; they bled sparingly.

Examination per Vaginam.—Os and cervix much less swollen and tender. Rep. med.

May 14. Was relieved for a day or two: has no darting pains, but a continued pain of the back, and has still the white creamy discharge. The catamenia appeared on the 8th, preceded by rather more pain than usual. ℞. Pulv. guaiaci, magnesiæ, āā gr. x. M. ft. pulv. o. m. s. ℞. Decoct. sarzæ comp. c. liq. calcis, ter die.

As she was living in a new house, built on a damp clay soil, I was much inclined to attribute the state of her general health to the nature of her residence, and urged her to go into the country as soon as she felt strong enough. This soon produced a considerable improvement. Although preceded by a good deal of pain, the next catamenial period was natural; the darting pains had entirely ceased, and the leucorrhœa nearly so. She came to town after a fortnight's stay in the country: she was still pale and weak, and suffered a good deal from pains in her limbs, but the digestive organs were in a more healthy state, and the appetite better; and I put her upon nitro-mur. acid with the succus taraxaci and infus. gentianæ comp. She returned to the country immediately, and continued to

improve in strength and looks; the two following menstrual periods were attended with much less pain, the discharge was more copious, and producing greater feeling of relief. She continued the above mixture until September, regulating the bowels with the guaiacum and magnesia powders.

I saw her again in September. She had passed one catamenial period, and was beginning to suffer from a severe pain in the pelvis (not of a throbbing or darting character), exactly as had been the case at the commencement of her pregnancy.

℞. Extracti taraxaci fluidi coch-med. j. o. n. Rep. pulv. guaiaci c. magnesiâ, o. m.

If the pain be severe, let her take gr. v. or x. of Dover's powder.

She was much relieved by this treatment. She regulated the liver and bowels by an occasional dose of blue pill, &c., and was safely delivered of a healthy child the following May.

Beyond the fact of her suffering occasionally from headache of a neuralgic character, there was but little evidence to point out the presence of an arthritic diathesis of the system. The predominant symptoms were the pelvic pain increased by the upright posture, and the white creamy discharge, described by Sir C. M. Clarke, in a delicate female, enfeebled by two early abortions, rapidly succeeding each other. The examination, per vaginam, put the nature of the case beyond doubt. The uterus was healthy, but the os and cervix throbbing with arterial excitement, and intensely painful when touched. I might have added, that these parts were considerably swollen, and of a deep red blush. As leeches were at hand I applied them myself, and certainly never saw the process of taking hold and filling performed so rapidly as on this occasion. There was one leech which actually came off well filled in seven minutes. I almost regret that I did not scarify the part instead; but she was weak, and I do not think could have borne a larger loss of blood without inconvenience. The state of the tongue and bowels did not indicate any alterative or laxative medicine, and I merely gave the nitro-muriatic acid in infus. gentianæ co., and desired her to use the decoct. papav. c. liq. plumbi as an injection.

The inflammation of the cervix was quickly relieved by the leeches, although not entirely removed. She now acknowledged to having arthritic pains of her limbs; the urine was thick. I therefore gave her the guaiacum and magnesia powders o. m., and ordered a mixture of nitro-muriatic acid with taraxacum and sarsaparilla. In a month after the first application of the leeches, they were repeated. They bled much less this time, as, indeed, might be expected, the os and cervix having become much less tender and swollen. Again the relief was but temporary; the white creamy discharge continued. There was still much pain of back, and the next catamenial period was preceded by a good deal of suffering; the rheumatic or arthritic habit of her system appeared to be the cause which kept up the local congestion, exactly as is so commonly seen with a sprained joint, or other injuries in a gouty subject. She had been accustomed to live in the country, and had not enjoyed good health since being in her present residence; moreover, the symptoms of the general derangement did not yield so readily as I might have expected; and feeling, therefore, convinced that a change of air was necessary, I urged her to try a fortnight in the country. A decided improvement was immediately perceptible; arrangements were made for a permanent residence in the country. She quickly recovered her health, and pregnancy, with a successful result, followed.—*Med. Times and Gazette, Sept.* 29, 1855, *p.* 315.

140.—*On the Employment of Wine in Enemata, especially in the Treatment of Chlorosis, Dyspepsia, Pulmonary Phthisis, and during Convalescence from severe Disease.*—The employment of medicated enemata, says M. Aran, the well-known physician to the Hôpital St. Antoine, is of very ancient date; but I have sought in vain for any mention of the administration of wine by this means amongst the older authors. Hoffman also recommends it for subjects whose strength is failing; it is not, however, to this renowned physician that I owe the idea of making use of wine-enemata in various diseases. I read M. Cazin's exposition of a mode of treatment adopted by him in chronic diarrhœa, which consisted in the employment of wine and eggs in lavements. I had at this time under my care in the

Hotel Dieu, a woman 85 years of age, affected for thirteen weeks with diarrhœa that nothing could control; she was exceedingly anæmic and had œdema of the feet, but no albuminuria nor heart affection. Three lavements of wine were administered to this patient daily, and although neither instantaneous nor complete, the result was, nevertheless, very remarkable; the number of the stools diminished, strength returned, œdema disappeared; the patient in a great degree resumed her natural complexion, and was occupied about the ward. I was so struck by the influence of the lavements on the general condition of this patient that I asked myself, whether during convalescence from serious diseases, when the digestive functions are languid, the convalescence might not be shortened by this means; if in cases, where the stomach would not bear aliment, it might not be possible to get up the patient's strength by such treatment. Repeated trials have now convinced me of its usefulness, and in no cases more than those of pulmonary phthisis, where I have employed it with great advantage to check diarrhœa.—*Bull. Thérap.—Dublin Hospital Gazette, Feb.* 1855, *p.* 18.

141.—SYRUP OF HYDRIODIC ACID.

By James Murdoch, Esq

Hydriodic acid in a liquid form has been introduced into medicine by Dr. Andrew Buchanan, as having the therapeutical powers of iodine without its irritant action. It has also been employed by him in the treatment of choleraic disease, and, accordingly, becomes a preparation of considerable interest.

The following speedy formula he has given for preparing it: Take of tartaric acid 264 gr.; iodide of potassium 330 gr.

Dissolve each separately in f ℥ jss. of distilled water; mix the solution, agitate and strain to separate the bitartrate of potash, adding water to make up the measure to f ℥ vj ℈. Each fluid drachm of this solution should contain 5.072 grains of hydriodic acid, equal to about five grains of iodine. When the solutions are mixed, the liquid assumes a slight yellow colour, and in ten minutes after gives a slight tinge of violet with a cold solution of starch, which gradually changes to a deep blue.

This rapid decomposition appears to arise, in some measure, from the agitation necessary to effect the separation of the bitartrate, and consequently, greater contact with the air. When hydriodic acid is prepared by the sulphuretted hydrogen process, it does not show decomposition for an hour or two after it is prepared; but if moderately agitated it shows the presence of free iodine much more speedily. It is, therefore, essential, in dispensing this acid, to prepare it extemporaneously, and supply it frequently to obtain its medicinal action. It may be very speedily prepared by the above process; and, for convenience, the solutions may be kept ready made and mixed when required; but as 264 grains of tartaric acid in f ℥ iss. of distilled water measure f 3 xv., and 330 grains of iodide of potassium in the same quantity of water measure f 3 xiv., it will be necessary to employ them in these relative proportions. Dr. Buchanan also directs it to be taken in starch gruel, which has the chemical effect of combining with the iodine that is liberated during the time of its administration.

I find that hydriodic acid may be prevented from undergoing this decomposition when in the form of a syrup.

The antiseptic properties of sugar are well known to the pharmaceutist, in the vegetable kingdom in the case of vegetable syrups, and in the mineral kingdom in the case of certain protosalts of iron, where the presence of sugar prevents the latter from becoming peroxidized by the absorption of oxygen, as in the cases of the carbonate, iodide, and protonitrate of iron.

What method, therefore, will be best adapted for the preparation of this syrup? In the usual way of preparing hydriodic acid, by passing sulphuretted hydrogen through iodine suspended in water, the iodine is very apt to be enveloped in portions of the sulphur that is set free, and escape the action of the H S. This being guarded against, a solution of hydriodic acid could be obtained, from which a syrup might be prepared, if cautiously operated upon, that would contain no free

iodine. The repugnance, however, that is usually felt by the pharmaceutist to the employment of H_2S, as the means of preparing pharmaceutical products, would render this process objectionable, although it should be found to be in other respects available.

With another means of preparing this acid, by decomposing a solution of iodide of barium by the equivalent of sulphuric acid, and filtering to separate the insoluble sulphate of barytes, as the iodide of barium itself is an unstable compound, it would be necessary to prepare this salt at each manipulation.

Assuming, therefore, that if a syrup can be prepared by Dr. Buchanan's solution, that shall contain no free iodine, it will furnish the most suitable manner of obtaining this acid for medicinal purposes, I have to propose the following proportions for a syrup. It is necessary, however, to observe, as one of the conditions of success, that the iodide must be free from any trace of iodate of potash.

Of four different samples of iodide that came under my notice, all gave a slight iodine reaction with solution of tartaric acid and starch. These, although containing extremely little of the other impurities usually found in iodide of potassium, were contaminated with a minute portion of iodate of potash. They had been prepared by what is known as the caustic potash process, and accordingly extremely liable to contain some undecomposed iodate. But, as it is quite possible to produce a salt by this process that shall be entirely free from even a trace of iodate, I think it is only necessary to guard manufacturers against this salt occurring in their product, to make it suitable for preparing hydriodic acid. I have, accordingly, used an iodide prepared by the Pharmacopœia method of decomposing the solution of iodide of iron by carbonate of potash:—

The Syrup.—Take of sugar ℥ij. 3ss.; water 3v.; dissolve in a flask with the aid of heat, and allow it to cool. Prepare solution of hydriodic acid as before mentioned, without adding any of the additional water. This operation should be done speedily, and it may answer for that end to strain it through calico. If paper were used, decomposition would show itself before filtration could be completed, unless the quantity was small. Of this strong solution take f℥ss. and ℈j. and mix with the syrup. The whole should measure f℥ijss., and each f3j. contain the equivalent of gr. ij. of iodine.

Or it may be prepared by dissolving the hydriodate and tartaric acid, each in syrup, instead of water, mixing them together, and letting it stand for a few hours, to allow the bitartrate to settle, and pouring off sufficient for the required quantity of syrup. With this latter mode, which appears the more feasible of the two, a slight decomposition takes place with the syrup, in the first instance, probably owing to the quantity of sugar being insufficient to preserve it; but, after being mixed with the larger portion of syrup, it remains unchanged.

Syrup of hydriodic acid, by the first method, I have had prepared since the 3rd of June, and it remains nearly colourless. I have also syrups having some colour, which have been made for several months, that have the same appearance as when first prepared. In a syrup prepared early in the winter the sugar has crystallized out of the solution, and the liquor on the surface, now weak of sugar, has a bright yellow colour, and gives a strong reaction with starch; but the crystallized portion is not affected by it unless a little nitric acid is also added, when it reacts strongly.

Hydriodic acid being gaseous, it will not be possible to procure it in a solid form combined with sugar. When a strong solution is mixed with powdered sugar and moderately heated, it gives off bubbles of hydriodic acid, becoming darker in colour, reacting strongly with starch, and ultimately becoming completely black, with abundance of free iodine.

The precise action of sugar with reference to these compounds that have been named, is still obscure. Klaur considers that a regular compound is formed in the case of carbonate of iron, but the subject of this notice is an instance where the action of sugar is not confined to salts of iron.

In conclusion, it is very probable that the protective agency of sugar is exercised over many other decomposable substances that have not been examined as to this property; and if it be so, it must become of corresponding importance as a *chemical agent* in pharmacy.—*Pharmaceutical Journal.—Dub. Hosp. Gaz., Oct. 1, 1855, p. 264.*

142.—*Collodion in Orchitis.*—Prof. Costes relates cases of this disease in which, after covering the scrotum with a mixture of 20 parts of collodion and 6 of ol. ricini, the swelling and pain were quickly relieved, and a rapid and complete cure was obtained.—*American Med. Monthly, Jan.* 1855, *p.* 68.

143.—*St. John Long's Celebrated Liniment.*—The yolk of an egg; oil of turpentine f ℥ iss.; strong acetic acid f ℥ i.; pure water f ℥ iii.; first rub the yolk of egg, the water, and the acetic acid together, then add the oil of turpentine, and agitate the whole until they are well mixed. This counter-irritant liniment is applied by means of a sponge; its effects vary with the force which is used in rubbing, and the length of time the application is continued.—*Dr. Neligan's Materia Medica.—Edinburgh Med. Jour., July*, 1855, *p.* 53.

144.—*Formula for the Internal Use of Chloroform.*—M. Dannecy, pharmacien, at Bordeaux, recommends the following formula:—Pure chloroform, half a drachm; oil of sweet almonds, two drachms; gum arabic, one drachm; syrup of orange flowers, one ounce; distilled water, two ounces; mix the chloroform with the oil, and make an ordinary oily draught. The author also gives a very ready mode of testing the purity of chloroform. Mix the latter with some oil; if the chloroform be quite pure, the limpidity of the oil will not be destroyed; whereas, any chemical impurity, however small, will give rise to a cloud.—*Lancet, May* 5, 1855, *p.* 462.

145.—*On Forcible Feeding.*—Dr. Szigmondy describes a simple and effectual means of administering fluid nourishment to persons who are unconscious, suffer from trismus, or obstinately refuse food. The patient is laid horizontally on a bed, with the head somewhat raised, and the food is poured by teaspoonfuls through the nostril. Reaching the pharynx, the movement of deglutition is provoked; and as soon as this is perceived, another small portion is poured in. In this way, too, physic can be given to children who resist. He relates a case of severe alcoholic coma, with spasmodic closure of the jaws, which was speedily relieved by the introduction of a solution of tartar emetic. This means is far easier to practise, and causes less irritation, than the introduction of the stomach-pump.

Dr. Beer states that by the magnetico-electrical induction apparatus, the mouth can be sufficiently opened to admit of portions of solid food being introduced.—*Wien Wochen.—Med. Times and Gazette, Aug.* 25, 1855, *p.* 194.

146.—*The Action and Uses of Digitaline.*—MM. Homolle and Quevenne have stated, as the result of their experience, that, in doses of one seventy-fifth of a grain, given three times a day, this substance acts as a diuretic in general dropsy, and with great speed and efficacy in reducing the effusion; and that it is not rendered more certain by any material increase of the dose. They further found that, in about double this dose, and sometimes in the same dose, it reduces greatly the frequency of the heart's action; and that the dose cannot reach the one-twelfth of a grain without producing nausea and symptoms of incipient poisoning. Dr. Christison, in the 'Monthly Journal of Medical Science,' Jan. 1855, gives us the results of his experience of its use. He believes it to be an energetic diuretic and sedative. His first two trials of it were made in cases of extensive renal anasarca. In one case, diuresis commenced towards the close of the second day, and in the other a day later; in both the flow was profuse, and the œdema entirely disappeared. He commends strongly the use of such diuretics as digitalis, squill, and bitartrate of potash, in renal dropsy. He has not found them, except in one instance, increase the albumen in the urine; and believes they have been shunned on grounds purely theoretical and baseless. It is the same with digitaline. In

the first of the two patients, the albumen quickly and greatly diminished; in both it disappeared at last, but in one, after some days, reappeared, but in diminished proportion. In one instance, great depression of the heart's action was brought on, instead of a flow of urine. He thinks it very likely that the diuretic and sedative actions do not concur. He gave it in the doses recommended by Homolle and Quevenne.—*Association Med. Journal, June* 15, 1855, *p.* 565.

147.—ON THE USE OF SALT-WATER BATHS IN CHOLERA.

By Dr. Thos. Henry Starr, Brighton.

As long since as the year 1849 I had reasons for entertaining the opinion, which I made known at the time, that the systematic and persevering use of the strong salt-water bath, at a specific temperature, ranging from 106° Fahr. to 112° Fahr. (the latter being the degree which comes under the denomination of fever heat), would be found an expedient of uniform and great practical value in the worst forms of collapse, and more especially so when, from our earliest attendance, we find we have to deal with the disease after it has reached the point at which the intolerance of the stomach to the normal action of internal remedies renders their administration futile or even worse than useless. The course of reasoning which drew me to this conviction was founded, to say nothing of the laws of endosmose, on the vital property residing in the skin, of permitting the absorption of fluids into the circulating vessels, as proved by physiological experiments of admitted authenticity, as well as by the many familiar examples of the endemic transmission of therapeutic agents when partially applied. It has been ascertained, moreover, that nutriment may be conveyed through the same channel; and Mr. Erasmus Wilson, in his valuable work on the Skin, says, at page 45, that "instances are on record, in which bathing in warm milk has been successfully employed as a means of supporting life, when the communication between the mouth and stomach was impervious."

The remedial measure which I have tested and found so practically efficacious, has the advantage of not requiring internal administration. Indeed, I am convinced that those practitioners who exclusively or chiefly rely upon internal treatment in the collapse of cholera will ever be doomed to disappointment in the great majority of such cases, for this obvious reason, that the stomach rejects them *in limine;* and as the blood, from the impetus of the disease, has already parted with the greater portion of its saline and watery constituents, whilst the residue has become cold and stagnant in the heart and vascular system, it stands to reason that our best chance for reaction and recovery depends upon a prompt, vigorous, and well-sustained restoration of its heat, its saline impregnation, and its fluidity. Without further comment I will adduce the evidence which has confirmed my belief, that a favourable result may be almost uniformly accomplished under the worst symptoms of collapse, by the comparatively simple and easy process which I have tried and recommend. The proportion of salt I use is about half a pound to each gallon of water.

The sectional outbreak of the pestilence which supplied me with material for this communication occurred here on Sunday, the 30th September, 1854. Its invasion and phenomena were characterized by a peculiar intensity and virulence; its distribution was circumscribed, whilst its existence was transient in the locality where it took place. The houses in which it appeared— viz. Nos. 2, 3, and 21— were crowded with inmates, and probably the least cleanly in the whole street, which is a comparatively obscure one, intersected by the boundary which separates the two parishes of Brighton and Hove.

Two children living on the first floor of 21, Cross-street, respectively named Wm. Moses Glover, aged nine, and John Glover, aged four, were suddenly seized with the epidemic about one o'clock P.M. on Saturday, Sept. 30th, 1854. They both died shortly after midnight, little or no medical aid having been obtained for them.

The next case happened the following day—viz. Sunday, Oct. 1st. The name of the victim was Eliza Stevenson, aged fourteen. She was attacked, her mother

told me, shortly before seven A.M., and although she received the assiduous attention of the medical officer of the district, she died the same evening, after twelve hours of great suffering.

The fourth case in this neighbourhood was the first which came under my control. The patient's name was Sophia Pyrke, aged twenty-two, a servant out of place, lodging with her sister at No. 2, Cross-street. I was called in to this person on Monday, October 2nd, 1854, near midnight. She had been suddenly attacked with symptoms of the disease less than two hours before. When I saw her the cramps were very severe in the abdomen and lower limbs; the countenance was sunk and anxious; there was a remarkable coldness of the body, including the tongue and fauces, with frequent paroxysms of vomiting and purging of fluids, closely resembling rice-water; the pulse was scarcely perceptible. Other remedies inclusive of calomel and cordial antispasmodics failing, I had recourse to immersion in hot salt-water at 100° Fahr. Under its influence the action of the heart and pulse speedily rallied, and with the return of animal heat, the other dangerous symptoms gradually abated. The fever of reaction was slight, and this patient recovered rapidly.

The second case I attended was that of Thomas Buckwell, aged forty-three, living on the ground-floor of 21, Cross-street, being the same house where the children named Glover died three days previously. He was attacked with the worst symptoms of the disease on the forenoon of Tuesday, Oct. 3rd, 1854. I gave calomel freely, combined with opiate confection; I likewise gave cordials of various kinds; nevertheless, the characteristic vomiting and purging, with cramps, increased in severity until the evening, when he was completely exhausted, collapsed, cold, livid, and pulseless. Under these apparently hopeless circumstances, I resorted to prolonged immersion of the whole body in the hot salt-water bath, at 110° Fahr., with immediate, signal, and triumphant success. The pulse rose gradually under its influence; both sight and hearing, which had been much impaired, were simultaneously restored; the vomiting and purging became less frequent; the cramps left him, and the dejections soon presented a bilious tinge. The consecutive fever was considerable, and accompanied with a brownish tongue, and slight delirium. In a few days, however, under careful management, this patient became convalescent.

The third case on my list, for its extreme virulence and obstinacy, afforded, if possible, still more conclusive evidence as to the specific value of my mode of treatment. The sufferer's name was Ann Shearing, aged twenty-nine; married, and living in the top story of the house inhabited by the Glovers, and Buckwell —viz. 21, Cross-street. She was seized with general prostration, vomiting, and purging, with violent cramps, on Tuesday evening, Oct. 3rd, 1854. She was attended throughout the night by the medical officer of the district, who sent for me betwixt six and seven o'clock the following morning, when I found the patient in a state of perfect collapse. Her countenance was shrunk, and death-like in the last degree; she was livid, and without the least perceptible pulse; the heart, limbs, and abdomen were tormented by cramps, which came on in paroxysms, as did the retchings, accompanied with copious rice-water evacuations. She complained in a marked manner, but feeble, whining voice, of inability to see or hear distinctly. In this case calomel had been administered in one large, and subsequent small doses, without any palpable benefit. In this unpromising condition she was plunged, with all possible dispatch, into a strong salt-water bath, which I steadily maintained at 110° Fahr. Under its influence the cramps almost instantly vanished. The heart's action became gradually excited, and the pulse at the wrist returned. I watched the rise and progress of the returning circulation and functions with intense interest and satisfaction; and with a succession of facts like those I have recounted staring me in the face, I could draw no other conclusion than that the brine bath, approaching fever heat, is a practical remedy which more effectually mitigates the sufferings and approaches more nearly to the character of a specific, in the collapse of cholera, than any other with which I am acquainted; and I believe I have investigated the merits of them all. After being in the bath for half an hour, the patient was lifted out and laid between hot blankets. The vomiting and purging had sensibly diminished in violence and frequency, whilst the dejections soon showed a bilious discoloration. The arterial action and gene-

ral warmth of the frame seemed to be well established. This improvement, with slight fluctuations, continued till the following morning, when the patient showed signs of relapsing into the worst stage of the disease. Without hesitation I again had recourse to immersion in the hot salt-water bath, the curative effects of which were even more conspicuous and decisive than at first, inasmuch that the symptoms and danger were effectually and permanently subdued by it. The febrile reaction which ensued, though protracted for several days, was of a moderate kind, and by the expiration of a week this patient was quite convalescent.

I might add to the foregoing cases that of Elizabeth Glover, aged twenty-six, mother of the two children who first died. She was affected with the worst symptoms of the epidemic, and became my patient. She suffered very severely, and her recovery was mainly due to the hot salt-water treatment.

During the same week there were two elderly people, named Martin, carried off by the Asiatic cholera, which ran its course very rapidly. They occupied the top floor of one of the infected houses—namely, No. 3, Cross-street. I was not concerned in the management of those cases, and I only adduce them as additional and undeniable proof of the malignant nature of the disease as it appeared in the locality.

I might strengthen the testimony in favour of my remedy, by adducing the case of an elderly woman, named Richardson, whom I attended a fortnight before in Upper North-street, Brighton; suffice it to say, at my first visit I found her rapidly advancing in the collapse of cholera. Her cure was brought about principally by the external agency of strong salt water at a very high temperature.

The internal remedy (if so it may be called) that I found most useful in the collapse, was Wenham-lake ice. My patients said it materially assuaged their sufferings, and strange to relate, "warmed" them. Its *modus operandi* seems to me to depend upon the astringent, or constrictive property of cold, by reason of which it restrains the morbid elimination of serum from the gastro-intestinal mucous surfaces. I then used it simultaneously with the hot salt bath, the good effects of which it appeared to promote.

With regard to treatment in the premonitory stage, that is, anterior to collapse, I may observe that I arrested the disease at its onset in three, if not four, cases which occurred in the infected quarter, by the administration, not of tartar emetic or ipecacuanha, but by stimulant emetics, consisting of salt and mustard, in equal proportions, followed by an active dose of calomel.

Lastly, it is worthy of notice that the ravages of the pestilence were confined to three houses in Cross-street. Whether this interesting result depended on the disinfecting measures that were adopted, I cannot positively determine, but I am inclined to believe it was so, as I effectually fumigated them from the basement to the roof with chlorine gas, copious volumes of which I obtained by pouring one part of strong vitriol on a mixture of two parts of black oxide of manganese, four of salt, and one of water.—*Lancet*, *July* 21, 1855, *p.* 48.

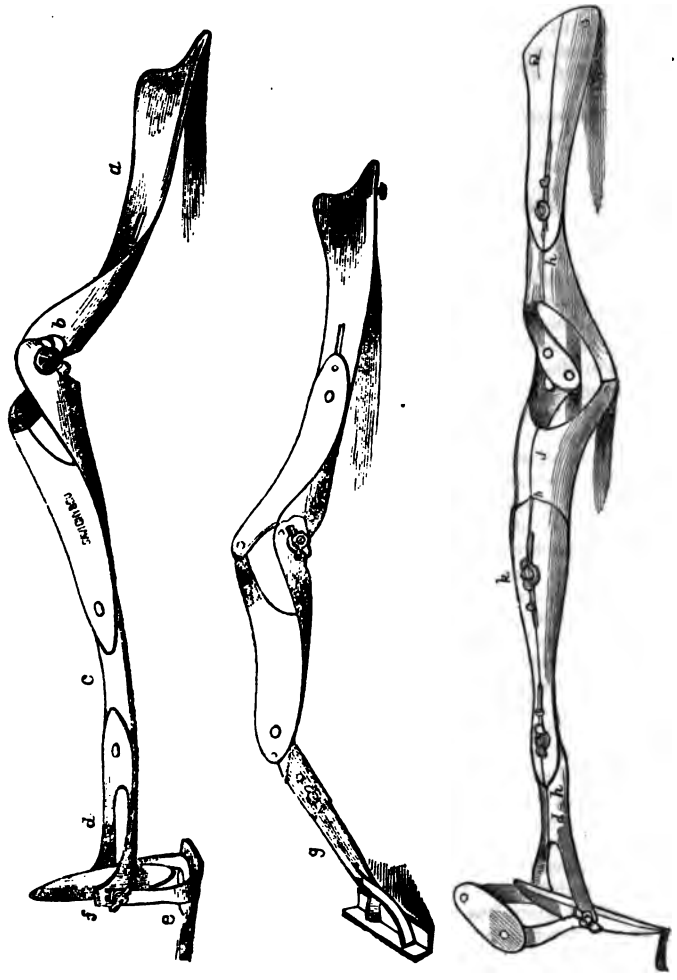
148.—*Phosphate of Lime.*—Dr. KUCHENMEISTER (Schmidt's Jahrb., 1854, vi. p. 298) recommends the following formula in cases in which phosphate of lime is indicated:—Calcis phosphat., ʒij.; calcis carbon., ʒj.; sacch. lactis, ʒiij.. M. ʒss. bis terve in die. Instead of the milk sugar, lactate of iron may be substituted, if iron be required. The especial use of the carbonate of lime appears to be that carbonic acid is liberated by the acid of the stomach, and dissolves the phosphate. Lactic acid also is formed from the sugar, or is set free from the lactate of iron, and dissolves the phosphate. The most ready way of absorption is, however, when the phosphate is given with food, especially with milk, with which it forms a soluble combination.—*Dub. Hosp. Gazette*, *Feb.* 1855, *p.* 15.

149.—NEW INSTRUMENT FOR THE TREATMENT OF FRACTURES.

By W. H. WINCHESTER, Esq., Surgeon to the Westbourne Dispensary.

[Mr. Winchester's apparatus, described below, will be found to possess several *advantages over* Mr. Liston's splint. Mr. Winchester says:]

No instrument, I believe, for the treatment of fracture of the lower extremity has received more favourable consideration from the profession than the double inclined plane, and particularly that form of it known as Liston's. But even that has fallen into disuse, having been weighed in the scale of experience and found wanting. Notwithstanding, however, all its defects, necessity still obliges surgeons of all classes, both public and private, occasionally to have recourse to it in extreme cases, a proof, therefore, that the double inclined plane does possess some advantages over other splints. Various as have already been the forms of it contrived by surgeons, yet as all are arranged upon the same general principle, all have proved more or less defective. In adding another form to the list I do so with confidence, believing it will be found as perfect and as generally useful as it is for any one instrument to be. I enclose a sketch of it. It is a modification of Liston's, to which my principle of adjustment is applied, believing that principle to be the only correct one on which the successful treatment of fractures can with any certainty be accomplished. The application of it to the double inclined plane will doubtless be received as a great improvement. The advantages which I claim



for it are:—1st. The power of adjustment to the natural curve of the limb, by which exact co-aptation is preserved. 2nd. Displacement is entirely prevented by the application of the swing to the foot-piece, which, although simple, is nevertheless most efficient, enabling the splint to move with the limb whatever its motion, whereby the comfort of the patient is materially increased. In addition to these a portion of it can be used as a stump-rest (fig. 3).

The instrument, it will be seen, consists of five pieces: (*a*) thigh, (*b*) knee, (*c*) leg, (*d*) foot-piece, (*e*) swing, (*f*) rack for regulating the angle of the footboard, (*g*) the support for stump-rest, (*hhh*) points or indices, (*fff*) central line, (*k*) screws for regulating strength and adjustment.

Its application is as follows:—Apply it to the sound limb, and having fixed the knee and foot-pieces at the desired angle, regulate the length and adjust to the natural curve by giving the necessary lateral movement, so that the limb may rest in its entire length exactly in the centre of the splint. Having fixed it in this position by means of the screws underneath, remove it from the limb, and observing the indices, mark their deviation from the central line, and by slightly loosening the screw, turn them to similar points on the opposite side, so that the natural curve of the injured limb may be thereby obtained; or if preferred, as more in accordance with the ordinary method of procedure, the length may be regulated by admeasurement, and such lateral motion given as is necessary to preserve perfect co-aptation.—*Med. Times and Gazette, Sept.* 1, 1855, *p.* 214.

The instrument can be procured of Messrs. Savigny, St. James's-street.

150.—EXFOLIATION OF THE MUCOUS MEMBRANE OF THE UTERUS.

By Dr. Tyler Smith.

Cases of what are styled "membranous menstruation," with the excessive pain attending this affection, are not uncommon in general practice, yet it is only lately that they have come to be properly understood. The older pathologists, as Baillie and Wm. Hunter, believed dysmenorrhœa to depend on an inflammatory condition of the uterus at the period of menstruation, and that even in the virgin uterus an organized substance, resembling the decidua, was formed by the lining membrane, and thrown off, when a small organized mass, the shape of the cavity of the uterus, was passed. Whether in the married or unmarried condition, it was known in common language as a "mole."

Dysmenorrhœa sometimes takes place from the very commencement of menstrual life, and there is good reason for believing that it depends on the small size or strictured condition of the os uteri. The menstrual fluid, after it is formed, or while forming, cannot readily escape; distension of the organ speedily follows, which, by exciting the contraction of the uterine fibres, produces pain almost simulating that of labour. Even the action of the abdominal muscles is called into play, and many cases of what are termed "spurious pregnancy" may be very possibly explained in this manner. It is believed, too, that women thus affected rarely, if ever, conceive or bear children, the normal healthy function of the uterus being interfered with, as well as the woman's health reduced by the constant suffering and pain. Of all the means of cure hitherto tried, dilatation of the canal of the cervix uteri seems to be the best, to which more recently has been added the introduction of a silver canula, as tried by Dr. Tyler Smith.

When in 1846 Professor Simpson, of Edinburgh, announced that the membrane expelled in certain cases of dysmenorrhœa was not simply a fibrinous or inflammatory exudation, the result of some change in this organ, but consisted rather of "exfoliation or detachment of the mucous membrane of the uterus itself," the obstetric world, according to Dr. Tyler Smith, as he explained to his class, was somewhat startled from its propriety, and ever since that time, when the matter has been referred to, it has generally been with strong expressions of doubt and incredulity. Obstetric practice has been hitherto rather undeservedly under a *cloud in London*, and few opportunities have been afforded to test the matter. *We are not aware* that any researches bearing directly upon Dr. Simpson's disco-

very have been published in London, so that the following case, abridged from th notes taken in St. Mary's, may be instructive.

M. D——, aged thirty-two, twice married, but without children, was admitted April 20th, suffering from dysmenorrhœa and the discharge of membranous matter at each monthly period. The history of the case, as taken by Dr. Vernon, was as follows:—She was first married at the age of sixteen, and before this time had menstruated healthily. After marriage she began to suffer from menorrhagia, which she supposed to have been caused by excessive intercourse. This went on, and ended in membranous menstruation, accompanied by sanguineous discharge. She continued to suffer in this way during the lifetime of her first husband; but seven years after her marriage she became a widow. She now slowly recovered her health, menstruation becoming less painful, and the dysmenorrhœal membrane disappeared altogether. She remained unmarried for several years, but married a second time about two years ago. Six months after this marriage she began to suffer pain again during the menstrual periods, and the characteristic membranous shreds reappeared in the discharge. She now for the first time had internal hemorrhoids, with fissure of the rectum; blood was occasionally passed by stool; and defecation, except under the influence of laxatives, caused great pain; micturition was also painful. In the intervals of menstruation she complained of leucorrhœa, the discharge being sometimes of a brownish colour. Occasionally severe pruritis was present. She had been a patient at several public institutions without obtaining material relief.

At the end of last year, when she first became an out-patient at St. Mary's Hospital, her health was a good deal broken by menstrual losses, the dysmenorrhœal pain, and the leucorrhœal discharge. At this time the membranous matter came away in flakes of considerable size, the largest flakes generally passing on the first days of menstruation. The greatest pain was suffered on the first day of the discharge, and the two or three days preceding its appearance. On examination, the uterus was of the natural size, and the only thing to be remarked was a very contracted state of the os uteri, scarcely admitting the end of a probe into the canal of the cervix. Various remedies were used with the effect of moderating the leucorrhœal discharge and improving the general health. The os uteri was on several occasions dilated mechanically, but it was soon found to return to its former state of contraction. On one occasion Dr. Smith introduced into the cervix uteri a small silver canula about three quarters of an inch long, with a view to its remaining in the canal during a catamenial period. She menstruated while wearing this instrument, the discharge coming away freely in a granular instead of a membranous form, and she suffered much less pain than usual. She herself stated that she had not been so free from pain at any month since the time the disorder reappeared after her second marriage. Some days after menstruation had ceased, this canula was taken out, and at the next two or three monthly periods the pain and membranous discharge returned as before. Dr. Tyler Smith now admitted her into the hospital, with the view of watching the case more closely, and ascertaining, if possible, the exact nature of the discharge. Shortly after admission menstruation took place, and the membranous flakes were carefully collected and examined with a lens and by the aid of the microscope. The largest membranous flakes exceeded the size of a shilling, and were about the eighth of an inch in thickness. When examined in water, they presented on one side a smooth surface, and on the other side the surface was flocculent and irregular. A vertical section showed the membrane to consist of a fibroid layer, in which was imbedded an abundant cell-formation, made up of multitudinous nuclei and celloid particles. From the free or smooth surface, numerous villi projected, while from the flocculent surface, long tubular glands could be seen passing downwards. These glands had a basement membrane, surrounded by an outer thin coating of nuclei and the fibroid tissue, and were lined with epithelium. The tubes of the glands were full of cylinder epithelium, nuclei, and granular matter. The tubular glands could be seen with the naked eye, and, with the villi of the surface, were characteristic of the uterine mucous membrane. There appeared to be no doubt that the membranous flakes were the mucous membrane of the fundus uteri, cast off *in toto*.

This case, then, strongly supports the pathological views of Dr. Simpson. An intelligent young German physician, Dr. Spiegelberg, of Göttingen, who saw this

case with Dr. Smith, informed us that the celebrated Virchow, of Wurzburgh, and Professor Heschl, of Olmutz, formerly senior assistant to Rokitansky at Vienna, had examined these exfoliations, and found them also to consist of detached mucous membrane.

On the approach of the next monthly period, after this examination of the membranous formation, the silver canula was again introduced, with the effect of diminishing the pain as before, and the discharge also contained much less flaky matter. The tube was allowed to remain *in situ*, and a second period has since been passed with marked diminution of pain, and alteration in the character of the discharge.

We have given an account of the present case because of its intrinsic interest, and to note the relief afforded by keeping the os uteri open with the canula. It remains to be seen how far the benefit derived in this way will proceed, but the use of such a means is certainly rational in a form of disease which obstinately resists ordinary modes of treatment. In other cases of membranous menstruation treated at St. Mary's, Dr. Smith has tried local abstraction of blood, counter-irritation, mild mercurialization, iodism, tartar emetic (given at the periods so as to keep up constant nausea), opiates, preparations of steel, cubebs, &c., &c., without arriving at any certain means of checking this troublesome disease. We ought not to omit to mention that in the case now under comment, full doses of camphor lupulin had been given with a view to their anti-aphrodisaic effects.—*Lancet, June* 16, 1855, *p.* 608.

151.—*New Form of Astringent Application.* By Dr. William Bayes, Brighton.—Pure glycerine dissolves nearly its own weight of tannin, affording a very powerful local astringent application.

The solution of tannin in pure glycerine appears to me to supply a desideratum long felt, and capable of a great variety of useful applications.

The solvent property of glycerine over tannin allows us to form a lotion of any desirable strength, as the solution is readily miscible with water.

The solution of tannin in glycerine, in one or other of its strengths, is peculiarly applicable to many disorders of the mucous membrane, readily combining with mucus, and forming a non-evaporisable coating over dry membranes; hence it may with benefit be applied to the mucous membranes of the eye and ear in many of its diseased conditions. It forms a most convenient application to the vaginal, uterine, urethral, or rectal membranes, where a strong and non-irritant astringent lotion is desired.

In local hemorrhages, where the bleeding surface can easily be reached, it will prove very convenient, and may be applied either with a sponge or small brush.

The solution must be kept in the dark, and should not be prepared for any great length of time before used, or decomposition will occur.

It is singular that glycerine does not possess the same property towards gallic acid.—*Association Med. Journal, Sep.* 29, 1854, *p.* 885.

152.—*On Gluten Bread.* By Dr. John Aldridge, Dublin.—Perhaps the publication of the following form for the preparation of gluten bread may save others the time and trouble I have myself experienced, in endeavouring to produce an agreeable and suitable edible. Whatever theory we may entertain as to the essential nature of diabetes mellitus, it is now generally admitted, as a practical fact, that benefit is derived in this disease from the limitation of the saccharine elements of food to the smallest possible quantities. As bread of some kind can scarcely be omitted from any system of alimentation, it is, therefore, desirable that we should be capable of making a variety which, containing but very little sugar or starch, should still be nutritious and palatable. At Bewley and Evans' we are frequently required to prepare a gluten bread, and the following is the formula which, after many experiments, we have found to yield the most advantageous *product*:—

℞. *Fresh moist gluten*, 24 oz.; bicarbonate of ammonia, ʒiij. gr. xij.; com-

mon salt, 3iss.; powdered carraway, 48 grs.; wheaten flour, 4½ oz.; powdered bran, 1½ oz.; salt butter, 4 oz.

The above quantities yield 24 oz. of bread, when baked. It should be baked in small and flat circular tin pans, placed on a moderately heated hot-hearth.

The only assistance that I derived from books in the construction of the foregoing formula, was contained in the following passage in 'Bouchardat's Manuel de Matière Médicale,' 1846, p. 515:—"Avec 80 de gluten, 20 de farine, et une petite quantité de levûre de bière, j'ai fait préparer du *pain de gluten* qui a rendu de grands services aux malades affectés de glucosurie." I need scarcely say that this process yields a leathery, tasteless mass, nearly impossible to masticate.

To render small quantities of bread light and spongy, I prefer bicarbonate of ammonia to fermentation by means of yeast, as without great care the latter is liable to get sour; and the bread ought to be made fresh from day to day. The addition of butter is essential to make the bread easy to masticate,—to eat short,—as, I believe, the technical expression is.

Second best flour, at about three shillings per stone, is that which I employ for obtaining the gluten. This is to be made into a stiff paste with cold water, and then kneaded with the hands under a current of water, on a slanting board placed in a ten gallon black crock, until starch can no longer be detected in small portions (taken from different parts of the mass) by tincture of iodine. The stone of flour yields from three and a half pounds to four and a half pounds of gluten.—*Dublin Hosp. Gazette, June* 15, 1855, *p.* 158.

A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOREGOING PAGES: SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

DISEASES AFFECTING THE SYSTEM GENERALLY.

CANCER.—The topical use of chloride of bromine for the cure of cancer has lately attracted much attention on the continent. The formula of the paste used is the following: Chloride of bromine, three parts; chloride of zinc, two parts; chloride of antimony, one part; chloride of gold, one part; powder of liquorice, sufficient to make a paste. It must be spread on linen and applied for twenty-four hours, the surrounding parts being protected by chloroform ointment. (M. Landolfi, p. 46.)

CELLULAR DROPSY.—The following may be employed with great advantage as a diuretic and alterative: ℞. Extract. conii, 3j.; pulv. cantharid. ℈ij.; hydr. chlorid. 3 ss.; pulv. ipecac. ℈i. M. Ft. pil. xl., sum. unam ter in die. (Dr. Horace Green, p. 274.)

FEVER.—Recollect that the ordinary rules of diagnosis lose much of their value in typhus fever. You may have all the signs of inflammation of any of the vital organs, without the slightest organic change. Even the physical signs of a pneumonia, when occurring in a case of typhus, are not to be taken as proof that a local inflammation has occurred. (Dr. W. Stokes, p. 81.)

The treatment of fever may be summed up as being a combination of measures to reduce excessive heat, to insure proper excretion, and to act on the semi-paralyzed nerves. To insure proper excretion is more difficult than to reduce the temperature; but it is best done by furnishing to the system a due supply of alkaline salts, as the chloride of sodium, which aids the formation and elimination of urea; or the salts of potash, as the nitrate, which has the same effect. Purgatives probably act by aiding this elimination of urea, which is retained in the blood, and may pass off by the mucous membrane of the canal. To restore the nerves to their normal action, you must give nutrients and stimulants to support and strengthen; when the heart's action is very rapid, ammonia is indispensable. (Dr. E. A. Parkes, p. 24.)

INTERMITTENT FEVER.—Give two ounces of the infusion of olive leaves three times a-day; made by macerating two ounces of the fresh leaves in a pint of water. (Mr. T. Spencer Wells, p. 31.)

Creasote is very useful, on account of its specific influence over the abdominal ganglia of nerves, especially the solar plexus. (Zwetkoff, p 38.)

QUININE.—The following are the general rules, established by M. Briquet, for giving quinine in fever:—1st. Give each hour or second hour the sixth or twelfth part of the quantity to be taken daily, and leave ten hours' interval without any quinine. 2nd. Gradually increase the dose, until head symptoms, vertigo, and pain are produced. In *ague*, give the quinine so as to produce the maximum effect at the commencement of the febrile action. In *typhoid fever*, give quinine during the night, for the access comes on in the afternoon, and it requires some hours after administration before it produces its full effect. Always give it in solution: when given in the form of pills it is only one-sixth as active in three hours. (Dr. H. Bence Jones, p. 277.)

SCARLATINAL DROPSY.—As a diuretic, the root of Caïnça is much extolled. *There is not in the* whole Materia Medica any drug which acts with more

promptitude or more success. ℞. Caïnça root ʒij., water ʒviij. Macerate for twenty-four hours, one-third to be taken every two hours. (M. Bruguier, p. 32.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Chorea.—This formula is an excellent anti-spasmodic and tonic. ℞. Extr. hyoscyami 3ss.; ferri valerian. 3i. M. Ft. pil. xxx., sum. unam ter in die. They may be given with great advantage for the treatment of all the neuralgic affections of anæmic and debilitated females. (Dr Horace Green, p. 273.)

Neuralgia.—In severe cases give half a grain of digitalis, in the form of pill, every three hours to subdue excitement. It may be necessary to produce a decided impression on the heart, but generally relief is obtained without. (Mr. J. Hardwicke, p. 59.)

When the disease has a centripetal, not a central origin, the more direct the application of the narcotic, the greater benefit you may expect to result. For this purpose, make a puncture with a small trocar over the most tender spot in the course of the nerve, and inject, by means of a very small syringe, about 20 or 30 drops of Battley's sedative solution into the cellular tissue. In a very short time it will be attended with entire relief. (Dr. A. Wood, p. 57.)

The narcotics and sedatives, when appropriately combined, are more prompt and decided in their action than when separately administered. ℞. Extracti hyoscyami 3ss.; morph. sulphatis gr. iij.; strychniæ gr. ii.; capsici pulv. 3ss.; zinci sulphatis gr. xv. M. Ft. massa; in pilul. xxx. dividenda; sum. unam ter in die. The above pills are especially serviceable where the branches of the fifth pair of nerves are involved and unattended by organic lesions; or another valuable remedy in these cases is: ℞. Ext. hyoscyami 3ss.; zinci valerian. ʒj. M. Fiat. pil. xxx. cap. unam ter in die. (Dr. Horace Green, p. 273.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

Palmar Arch, *Wounds of the.*—In primary hemorrhage, ligature is generally effectual, but if moderate exploration fail to discover the bleeding vessel, it may be completely controlled by properly-adjusted pressure. If secondary hemorrhage occur, exploration ought not to be attempted, judicious and properly-applied pressure will be found quite effectual; and under no circumstances whatever is deligation of the arterial trunks on the cardiac aspect to be deemed necessary or attempted. Apply the tourniquet to the brachial artery, strap up the wound with plaster, and place upon it a firm compress of lint, bandaging the hand and forearm moderately tight; also keep the tourniquet sufficiently pressing upon the brachial artery to moderately check the impetus of the circulation through the limb. (Dr. C. D. Arnott, p. 140.)

Subclavian Aneurism.—When the usual method of treatment is inadmissible, you may succeed by pressing the sides of the aneurismal sac together with the thumb so as to displace a portion of the lamellated fibrine in the aneurism; these clots will be directed forward by the current into the axillary and brachial, so as to block up the distal end of the artery. If followed up by local pressure, most striking and satisfactory results may be obtained. (Professor Fergusson, p. 138.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

Chronic Bronchitis.—The following combination of hydrocyanic acid is a most valuable remedy in the treatment of chronic bronchial disease, in allaying the cough of phthisis, and in all pulmonary catarrhal diseases, unattended with fever. ℞. Acidi hydrocy. med. gtt. lx.; morph. sulph. gr. iij.; vin. ipecacuan. ʒss.; mist. amygdal. ʒv. M. ft. mist. sum. coch. parv. bis terve die. If attended with

some degree of fever, the following may be substituted: ℞. Acid. hydrocy. med. gtt. xl.; vin. antim. p. t. ʒss.; syr. tolutan. ʒiss.; mucil. acaciæ ʒij. M. ft. mist. cap. coch. parv. ter in die. (Dr. Horace Green, p. 272.)

Cod-Liver Oil.—The following is a good formula, and completely masks the disagreeable taste and odour of the oil: yolk of one egg; sugar ʒj.; orange-flower water ʒj.; cod-liver oil ʒiij.; essence of bitter almonds gtt. j. (p. 77.)

Croup.—Sulphate of copper does not produce the depressing effects of other emetics, is equally safe, and much more sure in its action. Make a solution of eight grains in one ounce of distilled water, and give a teaspoonful to a table-spoonful every ten or fifteen minutes, according to the ease or difficulty with which vomiting is produced, and until the more violent symptoms are abated. When improvement in the symptoms takes place it must be continued in smaller doses and at longer intervals. (Dr. Hönerkopf, p. 83.)

Hooping Cough.—Hydrocyanic acid surpasses in efficiency every other known general remedy. It must be given as soon as the characteristic whoop is heard. ℞. Acid. hydrocyan. med. gtt. xxv.; vin. ipecac. ʒij.; syr. tolutan. ʒj.; aquæ dest. ʒiij. M. ft. mist. sum. coch. parv. 4ta horâ. If there be any bronchial inflammation present, the sedative ought to be preceded by the exhibition of an emetic. The dose of hydrocyanic acid for an infant is about three-quarters of a minim (Scheele's) every four hours; for a child three years of age, one minim to one and a half minims every four hours; for children ten or twelve years of age, one and a half to two minims every four hours. [We should be afraid of this dose in children. Ed. B. R.] When the inflammation has extended to the gastric mucous membrane, if combined with liquor potassæ and bitter vegetable infusion, it will exert a prompt and decidedly happy influence on the diseased action. (Dr. Horace Green, p. 272.)

The following mixture is very useful in the third stage of pertussis: ℞. Tannin gr. vj.; ext. belladon. gr. j.; ext. cicutæ gr. iv.; inf. sennæ ʒij.; aq. fœnicul., syr. altheæ ää. ʒj. One teaspoonful every two hours. (Dr. Berthold, p. 287.)

Phthisis.—When cod-liver oil is constantly vomited, give oleine prepared from the same oil in the same dose; it will have all the beneficial without any of the disagreeable effects of the oil itself. (Dr. A. Leared, p. 77.)

Give one to three drachms of glycerine in an ounce of water daily as a substitute for cod-liver oil, it is quite as efficacious, much less disagreeable, does not disorder digestion, and may be combined with any other remedy. (Dr. Crawcour, p. 79.)

Dyspepsia of.—The severity of the tubercular dyscrasia may be measured by the facility with which fats, oils, sugar, &c., are relished and digested. If a patient has acquired a liking for cod-liver oil and other kinds of fat, the disease is in abeyance; and the most ominous symptom of all is when the patient quickly loses all relish for such things. In all cases accustom the patient to oils and other fats; if the stomach will not bear them, give tonics, with an alkali or mercury in small doses and with great caution, until the stomach is improved; then give freely hydrocarbons, such as pork-chops, bacon, butter, cream, sugar, dried fruits, alcohol in various combinations, &c. (Mr. J. Hutchinson, p. 94.)

Pneumonia.—The surest remedy to reduce the frequency of the pulse is aconite. The tincture of the P. L. should be avoided as uncertain. It is most to be depended upon when made from the alcoholic extract of the root, say one grain of the extract to twenty drops of alcohol; the dose of this tincture would be from half a drop to three minims (one drop is about equivalent to one grain of opium). For children one or two drops may be added to eight ounces of water, and half an ounce given every two hours; for an adult, half a drop every two hours will very soon reduce the feverish excitement. Its action must be carefully watched lest an overdose be given.—To relieve local symptoms the patient may be placed in water as warm as can possibly be borne, until the patient faints, which will usually be in about twenty minutes; or instead of this Junod's exhausting apparatus may be used, which will draw the blood from the affected part to the extremity. As a counter-irritant, the acetum lyttæ with chloroform vesicates very speedily, especially if covered with cotton-wadding immediately after the application. This produces comparatively little discomfort to the patient, and, if repeated occasionally, a vast *quantity of serum* may be got rid off. The next best application to the chest is

flannel dipped in turpentine. At the commencement, promote expectoration by small doses of emetic tartar, and afterwards support your patient by mild emollient diet, broths, and gentle stimulants. (Dr. C. H. F. Routh, p. 80.)

TRACHEA.—*Topical Medication of.*—Tubercular cavities may be injected by carrying a long flexible tube down to the bronchial division of the trachea, then with a small glass syringe, injecting one and a half drachms of a solution of nitrate of silver thirty grains to the ounce. (Dr. Horace Green, p. 62.)

TUBERCULAR INFILTRATION.—Greyness indicates that the exudation is chronic; yellowness that it is acute; jelly-like consistence that it is recent. The grey infiltration takes place while there is yet a fit state of blood to pour out contracted plasma; the yellow points to a deteriorated condition of the blood when the disease has injured the constitution; the jelly is a still later exudation, and takes place towards the close of life, when the blood is very poor and unable to furnish a coagulable lymph. (Dr. C. Radcliffe Hall, p. 70.)

AFFECTIONS OF THE DIGESTIVE ORGANS.

BOWELS, *Spasmodic Stricture of.*—The severe bearing down pains from the bowels being long confined, may be effectually relieved by a gentle tapping or vibratory application to the sphincter ani with a blunt wooden instrument, as a common ruler. (Dr. J. W. F. Blundell, p. 98.)

CHOLERA.—When all other means failed, recourse was had to the hot salt water bath at 110° Fahr., with immediate, signal, and triumphant success. Perhaps this result may partly be owing to the disinfecting measures which were adopted, for the house was effectually fumigated with chlorine gas from the basement to the roof. (Dr. T. H. Starr, p. 294.)

During the stage of premonitory diarrhœa, give three grains of acetate of lead and two grains of opium, every two or three hours, with beef tea and brandy; apply mustard to the abdomen, calves of the legs, feet, &c. If there be rice water purgings, give three grains of calomel, two grains of opium, and two drops of creasote, every hour or two; but in this stage stimulants and tonics are more serviceable when given by the rectum. If the purging has ceased, but the cramp continues very severe, give ten drops of this mixture (chloroform ℥i., camphor ʒij.) every ten minutes, and as regular medicine, five grains of calomel, and five of rhubarb, every three hours, to excite the liver to action. A small, slow, wiry pulse indicates far greater danger than a soft and compressible one, even though imperceptible at the wrist. (Dr. D. S. Conant, *Amer. Med. Monthly, Feb.* 1855.)

CIRRHOSIS.—As the absorption of medicines given by the mouth is impeded, Dr. Christison recommends applying fomentations of digitalis infusion to the abdomen, so as directly to arrive at the general circulation. The employment of baths of Kreuznach water might be tried with reasonable hope of benefit. Frictions with cod-liver oil over the general surface might also be tried, seeing that the routine treatment by diuretics and purgatives is so unsatisfactory. (Dr. C. H. Jones, p. 99.)

COLIC.—Chloroform given internally is sometimes very useful, 100 to 300 drops may be given per diem, suspended by mucilage, and in divided doses, as the effects are soon dissipated. (M. Aran, p. 98.)

DIARRHŒA.—In long continued cases where the usual remedies were given without effect, the carbazotate of ammonia given in grain doses, with the same quantity of gallic acid, and one-sixth of a grain of opium, three times a day, continued regularly for a week or fortnight, has been found to effect a complete cure. Dr. T. Moffat, p. 42.)

Give one or two ounces of the decoction of tormentilla every three hours. (Mr. J. Hilton, p. 99.)

Chronic.—One scruple of tannin dissolved in four ounces of water, with the addition of one ounce of gum arabic, forms a good mixture for chronic diarrhœa and the third stage of dysentery. (Dr. Berthold, p. 272.)

Of Children.—It may be symptomatic of organic disease of the mucous membrane, or it may be an idiopathic affection catarrhal in its nature. If this last,

the action of borax lavements on the mucous membrane is regarded as analogous to the good effects of borax on the mucous membrane of the mouth. The following is the formula for this lavement: Borax 3 iv. to 3 vi.; sugar and water ℥ iv., (M. Bouchut, p. 99.)

Dyspepsia.—When there is a good deal of *uneasiness about the arch of the colon*, or lower part of the abdomen, two or three hours after taking a meal, owing to the passage of the food over the morbidly increased irritable mucous membrane in that part, the greatest advantage will be derived from the following medicine: ℞. Tinct. cinchon. co. 3 iss.; tinct. calumb. 3 iss.; tinct. nucis vomicæ ℥ ss. M. A dessert-spoonful three times a day, an hour before meals. In children a combination of soda with rhubarb will answer almost as well. (p. 85.)

When the only symptom is *loss of appetite*, without any discomfort at the stomach, sulphuric acid with small doses of quinine often suits well, or the infus. gentian. co. with liquor potassæ. If there is also constipation, a mild aperient must be given daily, or it may be combined with the mixture: ℞. Magnes. sulph. ℥ j.; acid. sulph. dil. 3 j.; tinct. gent. co. ℥ j.; aquæ ℔ j. Sum. ℥ j. ter in die. (p. 86.)

Where the appetite is good, but there is a *want of digestion*, to restore the gastric secretion, nothing answers the purpose better than pulv. ipecac. in half-grain or grain doses, twice a day, or combined thus. ℞. Pulv. ipecac. gr. ss-i.; pulv. rhei gr. iii.; ext. gentian. gr. i. M. ft. pil. To be taken twice a day, shortly before breakfast and dinner. (p. 87.)

If there be *simple acidity*, give alkalies until relieved, and afterwards vegetable tonics. The following are good formulæ: ℞. Inf. gentian. co. ℥ ii.; aq. calcis ℥ ij.; tinct. hyoscyam. 3 i. M. two or three times a day. ℞. Aq. calcis 3 vii.; sp. ammon. aromat. 3 ss.; tinct. hyosc. 3 ss.; magnes. carb. ℈ i. M. Draught twice a day. (p. 88.)

For *pyrosis*, bismuth proves an excellent remedy. ℞. Bismuth. ox. ℈ ii.; magnes. carb. 3 i.; pulv. aromat. 3 ss.; mucilag. ℥ i.; t. opii 3 i.; aq. cassiæ ℥ v. M. Take two tablespoonfuls when the pain is severe. (p. 88.)

When the eructations are tasteless or rancid, acids do most good; the nitro-muriatic acid with half-a-drop of creasote before meals answers well. (p. 88.)

When there is *morbid irritability of the stomach*, prussic acid has the most decided good effect; it blunts the morbid sensibility, and may be given with bitter infusion, as the following: ℞. Acid. hydrocyan. (*Scheele's*) gtt. xvi.; tinct. calumbæ ℥ ss.; aq. font. ℥ iiiss. M. ℥ ss. three times a day.—If with the pain there be also acidity or heartburn give: ℞. Acid. hydrocyan. (*Scheele's*) gtt. ii-iii.; sodæ carb. ℈ i.; tinct. gentian co. 3 ss.; aq. ℥ i. M. three times a day.—If the vomiting be severe and continued, the following will be often found effectual: ℞. Acid. hydrocyan. (*Scheele's*) gtt. ii.-iii.; creosot. gtt. i.-ii.-iii.; sol. morph. gtt. xx.; sodæ carb. gr. xx.; aq. ℥ iss. M.—In simple vomiting from atony, calumba is an admirable remedy: ℞. infus. calumbæ 3 vi.; liq. potass. 3 iss.; tinct. humuli 3 iii.; aq. piment. ℥ iss. M. One or two tablespoonfuls twice or thrice a day.—The next best remedy to prussic acid is nitrate or oxide of silver, ¼ or ½ a grain three times a-day. (p. 111.)—If the pain does not come on until one or two hours after a meal, Dr. Abercrombie's prescription answers admirably: ℞. Ferri sulph. gr. ii.; pulv. aloes gr. i.; p. aromat. gr. v. M. Three times a day. (p. 90.)

In *anæmic dyspepsia*, the usual treatment for anæmia must be enforced. Sulphate of iron as in Abercrombie's formula, or in pill with quinine, camphor, and ext. aloes, answers very well. Of the sympathetic affections, disorder of the heart's actions is perhaps the most frequent; for this the principal remedies are iron and nitrate of silver: ℞. Arg. nit. gr. iii.; p. opii gr. iii.; pulv. rhei gr. xii.; ext. humuli gr. xii. M. Ft. pil. xii. One three times a day.

In *flatulent dyspepsia*, if it be not of an inflammatory character, you will effect much good by the following: ℞. Pulv. Gregoril, p. aromat. aā ℥ ss. M. Half a teaspoonful twice or thrice a day, stirred in a little hot water. But you must both regulate the bowels and strengthen the digestive organs by tonics, for this purpose the following answers very well: ℞. Asafœtidæ gr. xxxvi.; p. rhei gr. xii. ol. cajeput. gtt. xii. M. ft. pil. xii. ℞. Infus. chirettæ ℥ xi.; tinct. zingib. ℥ i.; t. *hyosc.* 3 ii. M. Two of the pills to be taken every night at bedtime, and two *tablespoonfuls of* the mixture morning and mid-day. (p. 116.) If the patient is

distressed by the tympanitic distension, give half a teaspoonful of powdered ginger in four ounces of hot water, and apply a hot flannel sprinkled with turpentine over the epigastrium. (Dr. James J. Ross, pp. 85–94.)

Fistula in Ano.—After the division of the sphincter, there is often a relaxed condition of the part, so as to allow the rectum to protrude for several inches. The best treatment for this is the application of nitric acid; but the prolapsion may be entirely prevented taking place, by applying the nitric acid around the margins of the sphincter on the fourth day after the operation, and before the relaxation takes place. (Dr. T. R. Mitchell, p. 151.)

Gastralgia.—The irritability of the nerves of the stomach is, perhaps, best allayed by hydrocyanic acid. The following is an excellent combination; ℞. Acidi hydrocyan. gtt. lx.: ext. belladon. gr. x.; tinct. calumb., syr. simplicis, aa ʒj.; aq. destill. ʒij. M. ft. mist. sum. cooh. parv. ter in die. It has also been employed with great benefit in spasmodic asthma. (p. 278.)

Belladonna combined with quinine has been found very efficacious. ℞. Ext. belladon. gr. x.; quinæ sulph. 3j. M. ft. pil. xxx. sum. unam ter in die.

If occurring in the course of chronic gastritis, the following may be more useful: ℞. Ext. hyoscyami 3j.; argenti nitrat. gr. x.; bismuthi trisnit. 3jss. Ft. pil. xl. sum. unam bis die.

In cases of obstinate chronic gastritis, or long-continued dyspepsia, the following pills are more efficacious than any other single remedy: ℞. Ext. conii 3j.; argent. nitrat. gr. x.; pulv. capsici, quiniæ sulph., aā ℈ij. M. ft. pil. xl. sum. unam bis terve in die.

Pyrosis is arrested with great certainty by the above pills. (Dr. H. Green, p. 274.)

Femoral Hernia.—When you have been obliged to open the sac, you may form the best prognosis by an examination of the bowel immediately above the constriction. If it be of a pale reddish-grey colour, and feel thick and fleshy, the chances are in favour of a successful result: on the other hand, if it be of a bright pink colour, appearing thin as if distended with air, and if there be a large escape of red or dark-coloured serous fluid on opening the sac, the prognosis is most unfavourable. In all cases when the sac is opened, it is a good plan to draw down an inch or two of the bowel, especially when the strangulation has been of long duration, for in such cases perforation not unfrequently occurs from half-an-inch to an inch above the constriction. (Mr. J. Spence, p. 149.)

Mesenteric Diseases.—Great success has followed from the friction of the whole body, night and morning, with a sponge dipped in tepid oil; it produces abundant general sweating, increases the secretions of the liver and kidneys, and procures tranquil sleep. (Dr. Baur, p. 99.)

Piles.—Tormentilla is a very valuable vegetable astringent in cases of piles, passive hemorrhages, diarrhœa, &c. One or two ounces of the decoction may be given every three hours. (Mr. J. Hilton, p. 99.)

Tonsils, *Excision of the.*—First seize the tonsil by a long pair of forceps, terminating in a small hook, pull it gently forwards, then take a curved probe-pointed bistoury, the half of the blade being wrapped round with lint, place it with its back to the base of the tongue, and cut from below upwards; follow the curve of the pillars of the fauces, with the blade inclined inwards at an angle of about forty-five degrees. (Mr. L. Parker, p. 148.)

AFFECTIONS OF THE URINARY ORGANS.

Bladder, *Injection of.*—Take a piece of elastic tubing, the diameter of a quill, and about four feet long. To one end must be attached a small India-rubber funnel, the other end grasps the end of the catheter. When ready, the funnel end is held up at arm's length, and water poured in; the pressure of the column of fluid fills the bladder, which may be emptied again by depressing the tube. This tube might conveniently be attached to the end of the female catheter to prevent the need of having any utensil in bed. (Mr. Wormald and Mr. Collingwood, p. 176.)

CATHETERS, *Lubrication of*.—Castor oil is the best: when cold, it is viscid and adheres well to the instrument, losing its viscidity just at the proper time, when it arrives at the stricture. Olive oil should never be used. If the urethra be very irritable, it ought first to be well lubricated by passing a large instrument down to the stricture, then withdraw it and pass a second, also well greased. (Mr. Wormald, p. 176.)

DIABETES MELLITUS.—Gluten bread made according to the following formula, contains the smallest possible quantities of the elements of sugar: Fresh moist gluten, 24 oz; bicarbonate of ammonia, 3 iij. gr. xij.; common salt, 3 iss.; powdered carraway, 48 grs.; wheaten flower, 4½ oz.; powdered bran, 1½ oz.; salt butter, 4 oz. This will yield 24 oz. of bread. (Dr. Aldridge, p. 300.)

DIURETIC.—The tincture of asparagus alone, in water, is a very valuable diuretic; but it is most useful in producing the diuretic properties of other drugs, directing them at once to the kidneys. Half-a-drachm to two drachms, will produce copious diuresis. (Dr. S. J. Jefferson, p. 106.)

LITHOTOMY SIMPLIFIED.—In this operation, the fore-finger of the left hand must be in the rectum, with its point resting in contact with the staff as it passes through the prostate; you must then *cut up to the staff*, with the *back* of the knife to the rectum, and divide the membranous urethra *upwards* as you withdraw the knife. There is thus no risk of injuring the rectum. (Mr. G. Allarton, p. 160.)

MORBUS BRIGHTII.—This is not an inflammatory affection, but purely a disease of depraved nutrition: therefore you must endeavour to improve the general vigour and power of the system, and therewith its nutrition, in every possible way. After the dropsy is removed you must still continue your treatment until the urine is restored to its healthy condition, the blood improved and the system reinvigorated. The following is very useful in these cases: ℞. Acid. nitrici ℥iij.; tinct. cinchon. 3 i.; inf. gent. co. ℥i. Ter die. ℞. Tinct. ferri mur. ℥ x.; aquæ ʒi. Ter die c. cibo. (Dr. Handfield Jones, p. 100.)

In the sub-acute or chronic form, give five grains of iodine and five grains of bicarbonate of potass in one ounce of water three times a day. It has been very successful in reducing the general anasarca, and improving the condition of the health. (Dr. Corrigan, p. 140.)

RENAL DROPSY.—After having fallen into almost universal disuse, diuretics are again beginning to be prescribed in these cases; no other remedies effecting so much relief for the patient. The following is a very good formula: ℞. Potassæ tartrat. 3 ss.; spt. æther nitrici, ʒss.; aquæ piment. ℥j. Ft. haust. ter die sum. (Dr. Burrows, p. 105.)

RETENTION OF URINE.—When employing catheters of minute calibre for retention of urine, considerable inconvenience is often caused from some bending of the shaft; to obviate this, have the shafts of No. 1, and smaller sizes, made equal to the shaft of No. 2. The latter three or four inches only being of the size indicated by the register, this plan gives firmness, and does not interfere with the part introduced through the obstruction. When the catheter has to be retained for some time, if four or five inches of India rubber tubing be fastened to the end of the catheter, it will prevent the flow of urine down the outside of the shaft, and save the patient much trouble and annoyance.

When perineal abscess is found co-existing with retention of urine, it is very rarely necessary to have recourse to any severer measures than the opening of the abscess, and the passing of the catheter; and further, the sooner the necessary opening is made the less danger. (Mr. Henry Thompson, pp. 162–169.)

STRICTURE OF THE URETHRA.—The following method of applying caustic in these cases is free from the ordinary objections to the practice. Coat the end of a catgut bougie very evenly with a fine layer of caustic, by immersing it in fused nitrate of silver. Pass a full-sized straight catheter with one terminal aperture completely *down* to the stricture, then pass the armed bougie through the catheter *into* the stricture, and by gently rotating the bougie, the whole tract of the stricture may be freely and equally cauterized. (Mr. J. Z. Laurence, p. 175.)

SWELLED TESTICLE.—Dissolve gutta percha in bisulphuret of carbon, and spread *the substance* over the part affected. (M. Ellefsen, p. 180.)

URINE, Extravasation of, from Injury to the Perinæum.—We may have extra-

vasation of urine from a rupture of the urethra without any swelling in the perinæum, and in all such cases, where there are all the general symptoms of extravasation and you have reason to fear escape of urine, you must make a free and deep opening into the perinæum, exactly in the medial line. (Mr. John S. Fletcher, p. 177.)

AFFECTIONS OF THE SKIN, &c.

Acne.—Ammoniacal lotions form with the fatty matter of the follicles a soluble soap with an ammoniacal base. (M. Cazenave, p. 258.)

After arsenic has been given for a long time without improvement, try cod-liver oil in teaspoonful doses three times a day; it will often have a marked beneficial effect both upon the health and the disease. Lupus is equally benefited by the same treatment, but there is no cutaneous affection in which cod-liver oil has proved more effectual than in sycosis menti, or mentagra. (Mr. T. Hunt, p. 184.)

Eczema, &c.—Professor Malmsten, of Stockholm, has used cod-liver oil externally very successfully in intractable skin diseases. If the whole skin be affected the patient must lie in bed, all the body and bed linen being saturated with oil; an alkaline bath may be allowed once a week, but no other washing or change of clothes until the skin is restored to health. (p. 187.)

Internal remedies are most useful, ointments are injurious. The tincture of the muriate of iron given three times a day I have never known fail. The parts should be daily washed with oatmeal gruel. Occasionally a little powdered starch with oxide of zinc will aid the cure. (Dr. B. Godfrey, p. 185.)

Erysipelas.—If you uphold the powers of the system from the commencement of the attack it rarely happens that secondary phenomena manifest themselves; if you do not, the cellular tissue becomes involved, extensive abscesses form, which reduce the patient exceedingly, or perhaps wear out his life. If the glottis becomes affected and œdematous, you must perform tracheotomy, give food and stimulants perseveringly at stated intervals, strong beef-tea, and half an ounce of brandy every half hour, also ammonia and chloric æther. If the force of the poison falls principally on the mucous membrane of the pharynx so that the patient cannot swallow, the only resource left is to throw strong beef tea injections containing large doses of quinine into the rectum; you may also touch the back of the fauces with the solid nitrate of silver or a strong solution of it, and as soon as the patient can swallow a little, give large and frequent doses of brandy, ammonia, chloric æther, and beef tea. If the plan of feeding by the rectum fails, you must have recourse to the stomach tube, though only when all other means of introducing food are found unsuccessful. If it attacks the peritonæum, producing puerperal fever, or puerperal peritonitis, it must be treated in the same way, or the patient will sink. The stimulating and supporting plan is the best adapted to save life and prevent the secondary effects of this malady. The treatment consists in giving food and stimulants early, freely, and steadily, such as two or three ounces of beef tea at stated times, and from two drachms to half an ounce or an ounce of brandy slightly diluted with water; and if drugs are needed, ammonia, chloric æther, and bark. Don't give two different forms of alcoholic fluid at the same time, as wine and brandy, gin and brandy, &c., and for other nourishment it is desirable to observe the same rule. If you begin this treatment early, from the very commencement of the attack you will prevent both delirium and coma, but if, notwithstanding the treatment, coma does set in, you may with certainty conclude that the blood is poisoned by pus; and death will occur from pyæmia. Of all stimulants the alcoholic are the best, and if you have your choice choose brandy, it acts as an antidote to the erysipelatous poison. The tincture of sesquichloride of iron is very commonly given in this disease, it mainly acts by excluding depressing treatment, and perhaps partly as a tonic, but if you do no more than this you do very little, you must not only prevent depletion and depression, *but you must nourish and support.* (Dr. R. B. Todd, pp. 33–39.)

Traumatic.—As general remedies, give small doses of calomel combined with half a grain of opium, *James' powder*, and acetous extract of colchicum followed

next morning by castor oil to relieve gastric and bilious irritation. Restore the impaired functions of the skin and kidneys by means of nitrate of potass and nitrous ether; beef tea must also be freely given with solution of quinine. If the vascular action is of the asthenic type, wine will be necessary; if the disease be of the phlegmonoid kind incisions will be requisite to relieve the tension. As a local application, there is nothing better than camphor mixture, with a proportion of vinegar, and tincture of opium, applied warm by means of lint, and then covered with oiled silk. (Dr. Bird, p. 188.)

Hospital Gangrene, Erysipelas, &c.—All infection from these may be prevented by having a cradle of open wire-work filled with dry well burnt charcoal, hanging from the cage, which is placed over the limb. Charcoal in the shape of poultice is useless, for its power of absorbing noxious gases is destroyed when damp. (Dr. Stenhouse, p. 196.)

Nævus.—Paint the surface over with tincture of iodine every alternate day, leaving it off for a few days if the skin becomes irritable. The growth of the nævus will be arrested and it will finally disappear. (Dr. S. Edwards, p. 195.)

Onychia.—If you see this disease early, poultice until you can insinuate a small shred of lint under the angle and side of the nail, by means of a small probe; you must then wet this with a solution of nitrate of silver (3i. ad ʒj.). Keep the lint in for forty-eight hours, and by renewing two or three times the disease will be cured. To prevent a return, caution the patient against rounding off the angles when cutting the nails, and direct him to cut them straight across. (Mr. J. Hamilton, p. 191.)

Take a thin flat bit of silver nearly the length of the nail, and bend it into somewhat of an *f* shape. Push one end down between the ulcerated skin and the nail, and hook it under the rough edge of the latter: the upper end must be bent outwards, so as to press upon the fungoid growth, and secured by a plaster and bandge. By this means the nail is elevated and the overhanging skin depressed. It need not be interfered with for several days, when it may be readjusted, and the part soon heals. (Mr. G. M. Humphrey, p. 194.)

Porrigo.—External remedies are most useful. In the first stage simple mercurial ointment; in the second stage every particle of incrustation must be removed, and nitrate of mercury ointment applied night and morning. Internally you may give cod-liver oil, and a simple rhubarb powder occasionally. (Dr. B. Godfrey, p. 185.)

Scaly Cutaneous Diseases.—If there be any medicine more safe and manageable, in careful hands, than another, it is arsenic united with chlorate of potass; but if there be any medicine more dangerous and unmanageable than another, it is the compound of arsenic, iodine, and mercury, known as Donovan's solution. (Mr. T. Hunt, p. 182.)

Sebaceous Growths.—When found under the eyelid, pass a small probe through them on the conjunctival surface and stir up the contents with the probe dipped in nitric acid. (Mr. J. Erichsen, p. 196.)

Ulcers *of the Leg*.—The following formula has been very successfully used in chronic non-specific cases of this kind: ℞. Cretæ prep. ℥iv.; adipis suilli, ℥j.; olei olivæ ʒiij. M. (Dr. Patterson, p. 196.)

Variola.—Many are the remedies which have been recommended for the prevention of the pits left in the place of the pustule. Mercurial ointment has perhaps been most useful, though it is very objectionable. Trousseau's Elastic Collodion is much more useful and agreeable; it is formed of collodion 30 parts, Venice turpentine 1½ and castor oil ½ part. It must be applied over the whole face three or four times a day. The result has been highly satisfactory. (M. Delioux, p. 188.)

AFFECTIONS OF BONES AND JOINTS.

Femur, Dislocations of.—Let the operator stand on the injured side, seize the *ankle with one hand* and the knee with the other, then flex the leg on the thigh, *next strongly abduct* it, carrying it over the sound one, and at the same time up-

wards over the pelvis, by a semi-circular sweep, as high as the umbilicus; then abduct the knee gently, turn the toes outwards, and carry the foot across the opposite sound limb, making gentle oscillations of *the thigh*, when the head of the bone will slip into its socket. Traction on the femur is force misapplied, it is unphilosophical and absurd, contraindicated both by the anatomy of the joint and by the plainest laws of mechanics. As muscles are the principal agents in producing dislocations, so they may be made our most efficient assistants in reducing by manipulation, consequently "etherization to the extent of complete relaxation," instead of being an advantage, is a detriment. (Dr W. W. Reid, p. 126.)

The method of reduction by some American surgeons is to flex the leg on the thigh, carrying the thigh over the sound one, upwards over the pelvis, as high as the umbilicus, and then abducting and rotating it. At Guy's, the method is not so violent. In dislocation into the foramen ovale, adjust a towel around the thigh just above the knee, give chloroform, and when all muscular irritability has ceased, place the heel against the head of the femur, and make extension in a line parallel with the central axis of the body; if the limb now be slightly rotated, the head of the femur will be replaced. In dislocation on the dorsum ilii, give chloroform, place the foot against the pubes, grasp the limb above the ankle, make direct extension, with gentle rotation outwards, and the reduction will be accomplished. (Mr. J. Birkett, p. 131.)

If on the dorsum, put the patient completely under chloroform; then take the thigh, flex it on the pelvis, bend it outwards, and make a slight rotatory movement, when the head of the bone will slip into its socket. No extension whatever is required, simply lift up, bend out, roll in. Movements modified according to the different positions taken by the femur, are equally effectual with the other varieties of dislocation at the hip. (Mr. E. Cock, p. 132.)

Fracture of the.—Bandage the limb carefully and firmly from the foot to the crest of the ilium, apply a thick solution of starch all over the bandage so as to soak it well; then apply four millboard splints to the thigh, and two to the leg, and over these more starch; and lastly, more bandage, exactly similar in extent to the first. The limb must be kept as motionless as possible for forty-eight hours, the apparatus must then be cut up anteriorly from the toes to the groin, and the limb examined; if all seems going on well, it may be closed again by another bandage and starch, and when dried, the patient may be allowed to go about on crutches. (Mr. B. Hunt, p. 134.)

FRACTURES.—For a description and engraving of a new apparatus for the treatment of fractures, invented by Mr. Winchester, see page 297.

HARE-LIP.—The best time for performing this operation is between the tenth and twelfth month, the lips have then acquired a certain amount of thickness, a greater length for the application of sutures, and increased activity of circulation, and a consistency of tissue, capable of a better resistance to the traction of threads and needles. When performed on children, some days or even some weeks old, failures have almost equalled successes. The needles must be inserted at least three lines from the incised border, and not removed before the end of the third or fourth day. The insertion of the needles at a proper distance, and their retention for a sufficient period, constitute the chief elements of success. (M. Roux, p. 147.)

Take hold of the left border of the fissure with the forceps (figd. at p. 194), next transfix at the upper angle with a narrow sharp-pointed scalpel, and cut downwards, taking care to keep the knife close to the outer convex border of the forceps. The opposite side must be done in the same manner, using the knife with the left hand, if possible. Common sewing needles, or pins having their heads enlarged with sealing-wax, will answer as well as any. The entrance of the pin should be about three-eighths of an inch from the cut border, and extend nearly or quite through the full thickness of the lip; if it passes entirely through, the wound is entirely closed and delivered from the irritation of the pins. (Dr. Alden March, p. 144.)

HIP-JOINT, *Amputation at the.*—Of the several modes of operating, that by a large anterior flap is now considered the best, because the artery can be grasped with the flap, by an assistant, before the vessel is divided. The flap falls by its own weight into its proper place, purulent collections escape more readily, and the wound consists of one continuous surface. During the operation the nates of the

patient must project over the edge of the table, and the thigh must be slightly flexed on the abdomen; then take a knife fourteen or sixteen inches long, and transfix the limb to form the anterior flap, by making the knife enter about two inches below the anterior superior spine of the ilium, carrying it beneath the vessels to emerge immediately above the tuberosity of the ischium. The limb must now be forcibly abducted and everted, and the capsule opened, when the head of the femur will start out of the acetabulum. The remainder of the capsule is then cut, and the posterior flap made by carrying the knife downwards and backwards. A good deal depends upon the assistant slipping his fingers under the anterior flap as it is being formed, and compressing the femoral. (Mr. T. Tatum, p. 107.)

Hysterical Affection of.—The pain is more severe than in chronic inflammation. Pressure produces greater pain when slight than when firm, and is more general than when there is inflammation. It is most relieved by a belladonna plaster round the joint, and general tonics, such as quinine, iron combined with hyoscyamus, or valerian and camphor. (Mr. W. Coulson, p. 121.)

Humerus, *Dislocations of.*—In whatever direction extension is made, whether downwards and outwards, directly outwards or upwards, you must fix the scapula, not by the heel in the axilla, but by the direct application of the counter force against the acromion process. (Dr. F. H. Hamilton, p. 122.)

Knee-Joint, *Chronic Inflammation of.*—Absolute rest must be combined with compression of the limb, not of the joint merely, but it should extend over a considerable portion of the limb; this will diminish the flow of blood, promote the absorption of effused fluids, and prevent the organization of accidental products. Various means are employed for this purpose—in mild cases, strips of plaster and a bandage would do, or stiff leather with small spiral wires, secured by a lace. In cases of long standing, gutta percha splints may be applied, or a broad leather splint placed on each side of the limb (this is made of stiff cow-hide, softened in warm vinegar, and moulded on the limb, where it is allowed to dry). Perhaps the best is plaster strips and a flannel bandage, which should extend from the foot to the thigh; the limb must also be rendered immovable by splints, which should extend down to the foot, so as to prevent rotation. Counter irritation must rank next to these. Sir B. Brodie recommends an iodine liniment, composed of one drachm of iodine in one ounce of alcohol; or an acid liniment, composed of one drachm and a half of sulphuric acid, half an ounce of spirits of turpentine, and one ounce and a half of olive oil. Blisters act more efficaciously, especially when the disease is chiefly confined to the synovial membrane; they should be applied just above the joint and repeated frequently; they should not be kept open. Tartar emetic ointment should never be used for weakly or scrofulous children; croton-oil liniment is better, but the tincture of iodine is best. With regard to general treatment, the three principal remedies are mercury, iodine, and cod-liver oil. Mercury, in cases of synovitis, where the inflammatory symptoms are rather active; iodine in chronic cases, where no active symptoms are present; where the joint is much swollen and the swelling firm, three to five grains of iodide of potassium may be given twice a day, and must be continued for a considerable time to produce any effect. Cod-liver oil is to be preferred in all scrofulous cases, and like iodine should be administered for many months together. The syrup of the iodide of iron is an excellent preparation. When may passive motion be commenced? This is a very important question, and the safest answer we can give is this: Do not commence so long as movement of the joint occasions pain; if the contraction of the muscles is great, it may be overcome by dividing the tendons, and applying M'Intyre's splint with a screw. (Mr. Wm. Coulson, p. 113.)

Excision of the.—Having turned back the flap containing the patella, apply the saw carefully, and divide the required amount from the femur and tibia, without disturbing the soft parts by the needless introduction of a spatula; remove both ends together, first raising the separated extremity of the femur, and dissecting from above downwards. By thus keeping the articular extremities in connexion, their dissection from the popliteal vessels is rendered safe and easier, time is saved, and the operator can have the upper soft parts depressed by an assistant when the continuity of the vessels is unimportant, whilst he is enabled himself to raise the *back part of the joint* from the more perilous vicinity of the vessels inferiorly. *(Mr. O. Pemberton, p. 109.)*

Lower Jaw, *Dislocation of.*—The surgeon will obtain a great advantage in position, if, instead of standing before the patient, he stands behind. The head placed against his chest can be pushed forward at the time he is pushing the jaw downwards and backwards, with the thumbs in the mouth, and the fingers under the bone in front. By standing behind the patient, the head is more secure and fixed; he can also assist his manipulations by pushing forwards with his chest, and if necessary, employ much more force than when standing in front. (Mr. W. Colles, p. 133.)

Old Contractions and Anchylosis.—Place the patient under chloroform to relax the muscles, then forcibly bend or extend the limb, it will most likely crack, as the ligamentous structures and adhesions are broken through, but there is no danger. The limb must then be put in a splint, kept quiet, and evaporating lotion applied. Generally this plan suffices, though in some very obstinate cases it may be necessary to divide the hamstring tendons, before the limb can be straightened. (Mr. J. Erichsen, p. 137.)

Sprains.—The efficient employment of cold, either by ice or irrigation, is far preferable to any other application for diminishing both their duration and severity. (Mr. E. Cock, p. 138.)

Tarsus, *Excision of the.*—When the calcaneum and astragalus are not diseased Chopart's operation is the best; if these two bones are very much diseased, then Syme's; if the calcaneum be sound, then Peregoff's; or the calcaneum, astragalus, scaphoid, and cuboid, may any or all of them be removed, if the disease is confined to the tarsus, and the foot saved, by Mr. Teale's operation. In Peregoff's operation the calcaneum has to be cut through with a saw. The chain-saw has been generally used, but Mr. Simon thinks the "Dublin saw" much preferable, and does away with the objections usually urged against the chain-saw. In Peregoff's operation as performed by Mr. Simon, first make the usual transverse incision across the sole of the foot, from the external malleolus to the opposite point on the inner malleolus; next cut rapidly across the instep meeting the ends of the former incision; then disarticulate the astragalus, and cut through the end of the calcaneum. (Mr. J. Simon, p. 111.)

VENEREAL AFFECTIONS.

Chronic Gonorrhœa.—One scruple of tannin dissolved in four ounces of water, with the addition of one ounce of gum arabic, forms a good mixture, and may also be used as an injection. (Dr. Berthold, p. 287.)

Syphilitic Ulcerations of the Tongue.—You will find a saturated solution of the bicyanide of mercury, painted over the abraded surface, more useful than anything else you can apply; taking care that the patient does not swallow any quantity of it. (Mr. Wormald, p. 181.)

AFFECTIONS OF THE EYE AND EAR.

Atropia.—A good way of applying this is the following, as it saves much time: Make a solution of gutta percha in chloroform. In this dissolve the required quantity of atropia, and paint the eyelid over with it by means of a brush. In a few minutes the effect will be seen on the pupil. (Dr. Fleming, *Dub. Hosp. Gazette*, June 15, 1855, p. 152.)

Cataract, *Catoptric Test for.*—The catoptric examination of the eye affords the most unerring test. In the early stages, the brilliancy and distinctness of the inverted image are diminished, and long before the cataract is mature, the inverted image is obliterated. In capsulo-lenticular cataract, a very slight degree of opacity of the capsule suffices to destroy its function of reflection. (Dr. I. Hays, p. 208.)

Granular Conjunctiva.—Improve the patient's general health by good diet and pure air. An issue in the temple, kept open by a single pea, is often very serviceable. Tincture of iodine painted on the skin of the lids is also very useful.

Acetate of lead in fine powder, dusted over the everted lid, although painful at the time, gives decided relief. (Mr. J. Dixon, p. 203.)

Nitrate of Silver Stains.—In browning of the conjunctiva from nitrate of silver, which is permanent unless removed by remedies, apply freely and repeatedly a solution of iodide of potassium, (gr. viij. ad ʒj.) (Mr. G. Critchett, p. 208.)

Purulent Ophthalmia.—Give a brisk purgative at the very onset, afterwards either bark or ammonia, or quinine, and hyoscyamus if the patient be restless. Pure air must, if possible, be obtained, and all confinement avoided; meat, wine, and beer occasionally. As a local application, use a solution of nitrate of silver, (four grains to the ounce,) three times a day. In gonorrhœal ophthalmia, when rapid ulceration is beginning at the margin of the cornea, apply the solid nitrate of silver. In rapid ulceration and sloughing some have recommended general bleeding and salivation as a means of averting these morbid changes, but why should those principles guide us when the eye is affected, which we would not apply to any other part of the body? (Mr. J. Dixon, p. 198.)

Give mercury at the onset just to touch the gums; when ulceration has set in it must be given more sparingly; the solution of nitrate of silver (eight grains to one ounce) must be applied every two, four, or six hours, according to the intensity of the inflammation, &c. The weak solution of nitrate of silver is far more useful than a strong solution. When the inflammation runs high, leeches may be repeatedly applied as long as the preservation of sight is possible; or you may adopt Tyrell's mode of scarification, though Mr. Dixon, of Moorfields Hospital, entirely repudiates these radiating incisions of the conjunctiva. Throughout the course the eyes ought to be continually sluiced with warm poppy fomentations, containing one or two drachms of alum in the pint. (Mr. J. F. France, p. 197.)

Otorrhœa.—First carefully clean the passage by gently syringing, then take a small piece of dry cotton wool, introduce it with the aid of a speculum, and adjust it by gently pressing down every part of it upon the surface from which the discharge proceeds; this done every movement of the jaw must be restricted as much as possible, to prevent detachment. In twenty-four hours it must be removed and another dressing of the cotton applied in the same manner. (Mr. J. Yearsley, p. 216.)

Strabismus.—The disease is rather relative than positive, therefore before you operate, you must test the relative power of vision in the two eyes, and select that one for operation which is habitually inverted. (Mr. G. Critchett, p. 208.)

Operation for.—Under the influence of chloroform, the muscle must be divided sub-conjunctivally, in the following manner: Fix the eyelids open with a spring speculum, seize the conjunctiva, and make a small opening through it and the sub-conjunctival fascia with a pair of blunt-pointed scissors, at the lower border of the internal rectus, so as clearly to expose the sclerotic; then pass the strabismus blunt hook through the opening beneath the muscle, and divide the tendon by a succession of small cuts with the scissors between the hook and the insertion of the muscle into the sclerotic. If the tendon is broad you may make a counter opening at the upper border of the muscle, and divide in the same manner. The advantages of this plan are great; there is no inflammation, suppuration, or granulations; the caruncle does not shrink into a deep fossa as is so common, and eversion never occurs. (Mr. G. Critchett, p. 211.)

Eversion after the operation for.—Place the patient under chloroform, and expose the globe by means of the wire speculum, and with a pair of scissors carefully dissect off the parts covering the sclerotic on the inner part of the globe, commencing about two lines from the inner border of the cornea, and extending upwards and downwards, and then inwards. You must now divide the external rectus, then draw the flap which has been raised firmly forwards, and pass a very fine silk suture through it near the inner cornea; it must then be passed through the conjunctiva left near the cornea, by first separating it from the sclerotic towards the cornea, and passing the needle twice through it, so that it may not tear loose. Two or three sutures may be passed through in this way, but before you draw them tightly, cut away the superfluous part of the flap, then tie them. The immediate effect of this proceeding is some inversion, but the parts unite to *the globe in their* new position, and the eye becomes situated in the centre. (Mr. *G. Critchett, p. 214.)*

STRUMOUS OPHTHALMIA.—If of an "*inflammatory type*," the local symptoms are rapid and severe; the constitutional symptoms run high, and the treatment must be by salines, antimonials, mercurials, purgatives, and the warm bath, which is peculiarly useful. If of an "*irritable type*," the mucous membranes are congested and disordered, the secretions vitiated, the bowels irritated, and there is a general outpouring from the mucous surfaces. You must remove all causes of irritation, improve the secretions by a mild mercurial and an alkali, attend carefully to the diet, give "stale bread and butter, milk and water, and a little meat once a day;" and if the irritation of the mucous membrane continues in spite of this, the utmost benefit will be found from Battley's solution, a minim for each year, once or twice a day. If of an "*asthenic type*," which is common among the poor, there is emaciation and pallor, with a weak and rapid pulse, requiring support, a *tonic* treatment is found to answer best; you must try to develope power in the system: if there is any periodicity of the symptoms quinine is a specific; when the fibre is lax and flabby, steel is indicated. The combined salt of iron and quinine is a very convenient form, at the same time a liberal diet, with stimulants, must be allowed, and if possible sea air. Where this condition is complicated with much mucous and cutaneous irritation, arsenic is very useful, given three times a day, immediately after meals; but it must not be continued at any one time for longer than a fortnight or three weeks; but of all constitutional means removal to the sea air is the most important, and will cure when all else fails. As a local stimulant you may apply the solid nitrate of silver, moistened, and brushed lightly over the lids, or the tincture of iodine, repeating them every four-and-twenty hours for a few days. This method is peculiarly applicable to those cases in which vascularity and diseased action are slight, and photophobia is the prominent and principal symptom. The tincture of iodine is preferable to the nitrate of silver, as it causes less pain, and is equally efficacious. Solutions of nitrate of silver and other stimulants applied to the conjunctival surface are often decidedly injurious. When irritability is a prominent symptom, and the disease limited to the conjunctiva, local sedatives are very useful, and the best is the vin. opii dropped into the eye two or three times a day. (Mr. G. Critchett, p. 199.)

MIDWIFERY AND DISEASES OF WOMEN.

CHAPPED NIPPLES.—Apply the tincture of benzoin with a pencil. After the first application it will give relief and need not be washed off before the infant sucks. (M. Bourdel, p. 243.)

DYSMENORRHŒA.—When this is independent of organic lesions and occurs in females of a nervous temperament, the following pills seldom fail to give relief: ℞. Ext. belladon. gr. viij.; camphori, ʒj.; quinæ sulph. ℈ij. M. ft. pil. xxx. sum. unam secundâ horâ. Where a tonic is not particularly indicated the following is equally efficacious: ℞. Ext. belladon. gr. viij.; pulv. ipecac. gr. xv.; zinci sulph. ʒss. M. ft. pilulæ triginti. (Dr. H. Green, p. 274.)

LEUCORRHŒA.—When occurring in anemic and nervous females the following pills are highly recommended: ℞. Ext. hyoscyam. ʒj.; argenti nitrat. gr. x.; pulv. cantharidis, gr. xij.; quinæ sulph. ℈ij. Ft. pil. xl. sum. unam mane et nocte. (Dr. H. Green, p. 274.)

MENORRHAGIA.—A continued use of tannin for two or three months in increasing doses is of great utility in menorrhagia, when not from organic mischief. It may be given in the form of pills, one to five grains, three or four times a day. (Dr. Berthold, p. 286.)

PENDULOUS ABDOMEN.—Very often from flatulence and intestinal torpidity ("fat, fæces, or flatus"). The abdominal bandage tightly applied will soon dispel all suspicions, either of pregnancy or of ovarian disease, which might previously have been entertained. (Dr. West, p. 241.)

PREMATURE LABOUR, *Induction of*.—To give the child the best chance of surviving, instead of rupturing the membranes, you must separate them from their connection in the vicinity of the os. Various plans have been devised for this purpose; but perhaps Dr. Weir's instrument, which combines the uterine intro-

of potassium for it. ℞. Potassii cyanidi gr. xxij.; alcohol 3 xi. M. This preparation of cyanogen possesses the same medicinal properties, is of the same strength, and may be used in the same doses, and under the same circumstances, as hydrocyanic acid. (Dr. Horace Green, p. 273.)

Iodized Collodion, *External Use of.*—This will be found a very ready and efficacious way of applying iodine in very many forms of tumours. The quantity of iodine required is less than usual, as it is prevented from evaporating by the pedicle of collodion. Ten or twenty grains to the ounce will be sufficient for all ordinary purposes, and often five grains to the ounce. It also produces a degree of pressure which, in some cases, is important. Other agents, as the alkaloids, soluble in æther, may be applied locally through its agency, and soon produce their specific action. (Dr. Fleming,—*Dublin Hospital Gazette, June* 15, 1855, *p.* 151.)

Ligatures.—In cases of polypus, &c., the ligature sometimes breaks abruptly from the corrosive effects of the discharges. If the ligature be previously rendered waterproof by a solution of caoutchouc it answers beautifully, and comes away as sound as when applied. (Dr. Tyler Smith, *Lancet*, June 2, 1855, p. 561.)

Phosphate of Lime.—The following formula is recommended:—℞. Calcis phosph. 3 ij.; calcis carbon. 3 i.; sacch. lactis 3 iij. M. 3 ss. bis terve in die. Lactate of iron may be substituted for the milk sugar if iron be required. (Dr. Küchenmester, p. 296.)

Turpentine Bath.—Shut the patient in a room into which turpentine vapour is introduced from without. This is highly spoken of in catarrhal affections and rheumatism. (Dr. Moreau, p. 85.)

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THE

RETROSPECT

OF

PRACTICAL MEDICINE AND SURGERY,

BEING

A Half-Yearly Journal,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

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PRACTICAL MEDICINE,

&c., &c.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. 1.—ON THE PROPHYLACTIC AND CURATIVE TREATMENT OF CONTINUED FEVERS.

By Dr. ROBERT HUNTER SEMPLE, Physician to the Northern Dispensary.

[All know the main features of this strange and mysterious disease, and that it may assume an almost infinite variety of forms; but of the nature of fever, we may at once admit that we know but little: some consider it to be an affection of the nervous system, others of the gastro-intestinal mucous membrane, while others point to a disordered condition of the blood as the real cause. This last is that which is perhaps the most consistent with known facts, though the others are not destitute of plausible arguments in their favour. There is an indisputably close connection existing between the nervous system and the febrile diathesis, but the blood theory of the disease is by no means inconsistent with the facts of nervous disturbance, and the innervation must materially suffer when the blood is in a morbid state.]

The opinions of medical men in the present day tend towards the revival of the "humoral pathology;" and not only does daily experience teach us that the scalpel of the anatomist fails too often to reveal the real essence of disease, but we are, moreover, led to believe that the visible changes in the solid tissues are to be regarded as consequences of a vitiated condition of the vital fluid. The opinion that cancer and tuberculosis are originally blood diseases is fast gaining ground: that cholera, scurvy, purpura, and albuminuria are blood affections can hardly be doubted. In the whole series of inflammatory diseases the blood undergoes an appreciable change in the nature and proportion of its constituents, causing morbid deposits in the various organs; and it is most consistent with experience to attribute the whole series of febrile diseases, including the exanthemata, to peculiar conditions of the constitution of the blood.

This view is by no means to be regarded as wholly hypothetical, and, therefore, of little importance to the practical study of medicine, but is, in fact, pregnant with results of the highest importance in our treatment of disease; for, if we admit that diseases spring from poisons generated in the blood, or introduced from without, we shall be led to study the mutual relations of the human body to external or internal agencies, with a view to arrest the development of morbific processes in the system, instead of combating them when they have already seized upon some vital organ. How often do we find patients suffering from general *malaise* and evident illness, although no local injury is yet apparent, and no amount of sagacity can foresee the precise point which is about to be attacked. By a firm persuasion of the blood origin of diseases, and by a conscientious adoption of measures in accordance with that view, incalculable benefits will accrue to the profession and to mankind. Legislators and governments will investigate the hidden sources of disease in the surrounding elements, in the food, the clothing, the moral condition, of their people; and, by destroying noxious emanations, by promoting cleanliness and cheerfulness, and by the due regulation of diet, much will be accomplished in promoting the physical and moral welfare of the nations of the earth. I do not advocate any such extravagant doctrine as the possibility of the universal abolition of disease, or of moral evil, from the world; but experience

has proved that the sources of disease are more under human control than was formerly imagined, and that the health of the population may be indefinitely promoted by the adoption of sound measures of hygiene. Unfortunately, our professional assistance is often demanded when human skill is of no avail; and the warning voice of disinterested patriotism, on the part of members of our profession, is too often disregarded till remedial measures are too late.

The *treatment* of continued fever is a subject on which a great diversity of opinion still exists, although, perhaps, not so much as in former times; and it is very much to be regretted that all therapeutical means must be considered to be empirical; for, even if we admit, what I believe to be the most probable theory of the proximate cause of continued fever, the poisoning of the blood in this disease, we have yet to discover a method of treatment which shall eliminate the poisonous matter, and restore the patient to health. It does, indeed, seem probable that this elimination takes place; but we cannot assert that any means in our power can infallibly produce this desirable effect. I think it may be stated generally, that continued fevers run a certain course, extending over a certain number of days, although we have not yet been able to determine with accuracy the precise period to which any given fever will extend; neither has it been ascertained whether, by means of treatment, a fever which would run on to six weeks, has been curtailed to the duration of seven or fourteen days, although it is highly probable that such is the case. I must confess that I do not believe in the possibility of *cutting short* a fever by any one remedy, although, as I have just observed, I believe it likely that the duration of fevers may be diminished by the application of combined agencies.

But in order to direct with judgment the employment of remedial measures in fevers, I believe it to be essential to consider their different species.

The division of continued fevers by Cullen will be readily called to mind; the *synocha* or inflammatory fever, the *typhus* or lower fever, and the *synochus* or mixed fever. But this division is obsolete, for the synocha or inflammatory fever seems to have disappeared from among us. The division into *typhus* and *typhoid* is far more in accordance with modern observation, and I may at once express my conviction that this division is founded upon nature, as I have seen many hundred instances of the disease in the London Fever Hospital; and in all these cases the diagnostic marks of the two diseases were very plainly indicated. The scepticism which still prevails in some minds upon this subject is probably due to imperfect observation, or limited experience, or to the fact that in some of the milder cases of fever, the peculiar rash is not developed. In my own experience, although seeing in the course of each year several instances of fever, I was not much struck with the divisions of fever into typhus and typhoid, but when from local circumstances I was thrown in contact with a great number of cases, I was enabled to compare one case with another, and thus to establish in my own mind the accuracy of the diagnosis. It must be recollected, that nature always exhibits connecting links between diseases, as she does between the tribes of animals and plants; and just as it happens that it is difficult to distinguish certain forms of cutaneous affections without an extensive range of subjects for study, so is it also difficult to seize readily the distinguishing marks of *typhus* and *typhoid* fever, without the opportunity of observing a great number of cases, following them through their different phases, and watching their peculiar complications.

While making these general remarks, I am by no means ignorant of the fact that cases have been occasionally adduced in which the marks of typhus and typhoid fever have been described as occurring in the same patient, and I do not affirm that the question is at present finally settled; but if any serious attempt should be made to controvert the existence of the distinctions, it must be made with the same patience and zeal that has been exhibited by Dr. Jenner, and must be made in an equally extensive sphere of observation as that afforded by a large fever hospital.

Without entering at length into the pathology of these two divisions of fever, which have been elaborately described in Dr. Jenner's well-known monograph, it will be necessary to give a brief sketch of the diagnostic marks of each, as bearing upon their treatment.

The typhus fever is characterized by its very contagious nature, by the greater prevalence of cerebral symptoms, by the presence of a dark mulberry rash,

persistent, and not fading on pressure, and by the absence of disease of Peyer's glands.

The *typhoid* fever is characterized by its comparatively non-contagious nature; by the less developement of cerebral symptoms, by the presence of a light, rose-coloured rash, chiefly appearing on the trunk, fugacious, disappearing temporarily on pressure; by the existence of disease of Peyer's glands; by the existence, more or less severe, of diarrhœa; by a blown condition of the abdomen; by gurgling in the right iliac fossa.

Although certain forms of these diseases approximate to one another in a greater or less degree, yet it is very easy to distinguish the well-marked cases of each.

A patient with well-marked typhus fever has an appearance of great depression; his skin, especially upon the trunk and limbs, is covered with a multitude of dark purple, patchy spots, very much resembling measles, and in certain cases liable to be mistaken for that disease; his tongue is brown, dry, and furred; his pulse, in the advanced state of the case, is small, rapid, and irregular.

A patient with typhoid fever does not in general exhibit such well-marked depression; and, indeed, his appearance is so deceptive, that it might sometimes be imagined that he was not suffering from serious disease. A few rose-coloured spots are scattered over his abdomen and chest; these fade away, and are succeeded by others more or less numerous, but never resembling the patchy, measly rash which is seen in typhus; the tongue is usually dry, glazed, and of a mahogany colour; the pulse sometimes continues for a long time rapid and firm; diarrhœa is usually a marked symptom, and the motions are copious, watery, and in extreme cases bloody; the belly has a peculiar blown appearance, and there is gurgling in the right iliac fossa, which is, no doubt, due to fluid in the cœcum.

I repeat, that these appearances and symptoms in typhus and typhoid fever are relative and not absolute marks of distinction; and it is quite possible that all the symptoms may not be observable in every case. I may observe, further, that in typhus there is marked tendency to cerebral disturbance: in typhoid the abdominal symptoms preponderate; typhus fever is propagated by contagion; typhoid is caused by local and endemic influences.

The *treatment* of fever may be divided into two heads, viz., that which is applicable to both kinds, and that which is suitable especially for each. The general treatment will first be noticed.

One of the remedies which has been most loudly extolled in the treatment of fever is *blood-letting;* and it is deeply interesting to compare the former doctrine and practices in relation to this powerful agent with those entertained in the present day.

Dr. Southwood Smith, writing in 1830, and viewing fever as a form of inflammation, strongly advocates the necessity of blood-letting. "The physician," says he, page 381 of his book on Fever, "in the first stage of fever, armed with his lancet, is to his patient what the fireman with his engine, before the flames have had time to kindle, is to a building that has taken fire. At this early stage the former can check inflammation with almost as much ease and certainty as the latter can prevent the flames from bursting out. On the contrary, the Physician who is called to treat an inflammation in the latter stage of fever, is in the position of a man who arrives with the apparatus for saving the house when its stories have been already consumed, and its roof has fallen in. Bleeding in fever cannot be performed too early. The very first moment of excitement, could that be discovered, is precisely the moment when the employment of this powerful remedy would produce the greatest effect. The earlier the bleeding, the greater will be the impression made upon the disease, and the less upon the patient; or, the more effectually will the inflammatory action be stopped by the loss of the smallest quantity of blood."

Now in quoting this passage, which inculcates doctrines so much at variance with those of the present day, and which are now entirely opposed to the practice of this distinguished Physician himself, I accuse Dr. Southwood Smith of no inconsistency. It is not he who has changed his opinions, but it is nature who has altered the type of disease; and this remark applies not only to the pathology of fever, but to that of many other diseases.

About the year 1830, when Dr. Southwood Smith's book on Fever was written,

a change was coming over the type of disease; and instead of affections requiring vigorous and timely depletion, came maladies accompanied by rapid sinking of the vital powers. They who were in practice about that period, will recollect cases of the Synocha of Cullen; the hot, burning head, the hot skin, the throbbing heart, the quick and full pulse; and will remember that a copious abstraction of blood would relieve the symptoms, and in some cases even apparently cut short the disease. But he who seeks among the numerous cases admitted into the Fever Hospital or elsewhere for a fever so characterized, or likely to be so relieved, will seek in vain, for a wholly different disease has taken its place. Besides fevers, diseases new to mankind, or at any rate imperfectly and obscurely described by former authors, have swept over the earth during the present century; in 1832 came the cholera into this country, a disease, not unlike fever in its pathology, inasmuch as it seems to consist of a decomposition or some other obscure condition of the blood, and is, moreover, not unlike the worst forms of typhus fever in its rapid fatality. In 1833, the influenza, an aggravated form of catarrh, and accompanied and followed by a marked prostration of the powers of life, seized upon thousands of the population, and although not so rapidly fatal as cholera or typhus, yet hurried away from the scene of life the very young, the old, and the debilitated; and attacking persons in the flower of age, often laid the foundation of irreparable mischief. Still later the plague of boils has visited our land, accompanied by depression of vital energy quite disproportionate to the local disease. Even the forms of inflammation in which blood-letting was, and in certain instances still is, the acknowledged remedy, have changed their type and require a very cautious, instead of a bold and vigorous, application of that kind of depletion. The cases of pneumonia now requiring the loss of blood are comparatively few, and in the treatment of certain forms of this inflammation, even carbonate of ammonia, generally considered as a stimulant, has been employed with no inconsiderable success.

[The treatment of fevers will vary very much, depending upon their cause and course. We will endeavour to point out the distinctive plans to be pursued in the two forms of Typhus and Typhoid.]

Typhus Fever is recognized in its early stage, without much difficulty; there is a rapid and rather full pulse at first, a brown tongue, great thirst, and more or less delirium; the bowels are generally confined; there is a characteristic mulberry rash. The bowels should be opened with a drachm or two of castor-oil; the thirst should be allayed by toast-and-water; a mixture should be prescribed containing spirits of nitric ether, solution of acetate of ammonia, and camphor mixture. If there should be great delirium, much relief will be obtained by shaving the head, and a blister should be applied to the nape of the neck. As the disease advances, the pulse, retaining its rapidity, most probably loses its fulness, and as soon as this is observed, beef-tea and wine should be administered in small quantities often repeated, and a mixture containing the carbonate of ammonia, should be substituted for, or added to, the mixture just described. If the symptoms of sinking should increase, which is very often the case, and is indicated by a feeble, fluttering, and irregular pulse, trembling of the limbs, and muttering delirium, then brandy should be administered pretty freely in addition to the wine, and strong beef-tea should be frequently given. In addition to the carbonate of ammonia, the stronger diffusible stimulants should be prescribed, as the spiritus ammoniæ aromaticus, the spiritus ætheris compositus, and a modification of the mistura spiritus vini Gallici. It is only by a vigorous adoption of these measures that life can sometimes be saved; and, indeed, it is perfectly extraordinary how, under circumstances apparently desperate, the patient has been restored by an unsparing use of these and similar stimulants.

The use of opium in typhus fever, must not be passed over without a remark upon its great value in certain stages of this disease. In the early period, this drug would be injurious; in the latter it is useless. But where there is great restlessness and irritability, together with great weakness, the use of opium is invaluable; it quiets the patient, procures him sleep, and raises the pulse. The usual form of administration of this medicine at the London Fever Hospital, is the tincture, given *in doses of ten minims*, and repeated if restlessness is not relieved.

In Typhoid Fever the symptoms are by no means always so well-marked as in

Typhus, and indeed the early stages of this disease are recognized with difficulty, and the malady steals on in a most insidious manner. In other cases, however, the symptoms of fever are sufficiently evident: there are, the hot head, the greater or less delirium, the thirst, the full and rapid pulse. In this fever there is less tendency to delirium than in typhus, the progress of the disease is not so rapid, the danger from collapse not so imminent, the abdominal symptoms much more evident. In the early days of this disease, the same treatment may be adopted as is recommended in typhus; the constipation, which is often a marked symptom, is to be overcome by small doses of castor-oil, and a mixture may be given containing solution of acetate of ammonia and camphor mixture. It must be particularly remembered that, in this disease, there are inflammation and ulceration of Peyer's glands, and that the external indications of this affection are to be found in the rose-coloured spots scattered over the chest and abdomen. Our attention must, therefore, be especially directed to the detection and repression of abdominal disease. The abdomen is often hot and painful on pressure, and there is sometimes obstinate constipation, and frequently diarrhœa; the latter symptom being often severe, and generally very alarming. In combating these abdominal symptoms, a cautious employment of depletion, and the use of alteratives, will generally be found of great service. Notwithstanding what I have written upon the danger of blood-letting, it will often be advantageous to apply some leeches over the abdomen, when there are great heat and pain over that region; but it must be especially noted, that this measure is far better borne in private practice, or in establishments for the general treatment of disease, than in Fever Hospitals, where, as formerly remarked, depletion is attended with danger. Besides the application of leeches, great comfort is afforded to the patient by placing a large warm poultice over the whole abdomen, and various forms of counter-irritation are often attended with beneficial effects, the principal of them being the use of blisters or the acetum cantharidis, and epithems of warm turpentine. The internal remedies to be employed, for the purpose of controlling the abdominal disease, are small and repeated doses of mercury; again adverting to the fact, that this mineral must be used with great caution, and is less available in hospital, than in private practice. The administration of two or three grains of hydrargyrum c. creta, with as many of the pulvis ipecacuanhæ compositus, every six hours, is a useful remedy for checking the inflammation of the intestinal glands, and regulating the secretions. But it often happens that diarrhœa, which is a concomitant of this disease, sets in with great severity, and by its drain upon the system, threatens to carry away the patient. Under these circumstances, the chalk mixture will often be found efficacious, and tincture of catechu or of kino, with a few drops of tincture of opium, may be added, or the pulvis kino compositus, or the pulvis cretæ compositus c. opio, may be given. But, perhaps, the most efficient remedy in this state of the disease is the acetate of lead, and it may either be given internally in grain doses, or (what is a very valuable mode of administration) may be injected into the rectum as an enema, with solution of starch and some tincture of opium. By this proceeding, which is very frequently adopted at the Fever Hospital, the most serious cases of diarrhœa are often relieved, and the lives of the patients are saved.—*Med. Times and Gazette, Feb.* 16, *p.* 160; *and March* 8, 1856, *p.* 229.

2.—*On Typhus Fever.* By Dr. Gordon, Physician to the Hardwicke Fever Hospital.—[While Dr. Gordon holds the distinctness of typhus and typhoid fever to be of the greatest practical utility, he would subdivide typhus into maculated and non-maculated, founding the division on two great changes which take place in the blood.]

In the maculated typhus fever we have always in the eruption proof of the excessive fluidity of the blood; we are unfortunately seldom without some additional proof, either in high-coloured and albuminous urine, or expectoration tinged with blood, or the more alarming epistaxes and intestinal hemorrhages; in the non-maculated typhus, on the contrary, we have no evidence of excessive fluidity of the blood, but every sign of an increase in the quantity of fibrine. Modern pathology has completely set aside the idea so long entertained, that the amount of fibrine

Bennett's cases, two, one of typhoid and one of typhus, died; of the cases reported upon by Dr. Barclay, two also proved fatal. The mortality among the patients treated by Mr. Fletcher is not stated.

The theory on which Dr. Dundas bases his treatment is: 1st. That intermittent, remittent, and continued fevers are mere varieties of the same disease; and that as bark will generally arrest the former affections, it "ought to, and will generally, arrest" typhus. Though, as an ague will sometimes resist for many days the employment of quinine and afterwards yield, it may be expected to be so also with typhus; and 2ndly, that when quinine is administered in large doses in typhus, if not curative, it is "never followed by the slightest ill effects."

It will thus be seen that Dr. Dundas exhibits quinine in fever, not merely as a tonic, with the view of effecting a general improvement in the symptoms, or as an auxiliary to other treatment, as bark was formerly given by various physicians, and as quinine has more recently been employed in small doses; but that he claims for it the power of cutting short the disease, and that not only in one particular form of fever, or under certain peculiar circumstances, but in all cases. He believes, indeed, that by its use "the time approaches when the treatment of typhus fever, after ages of vacillation, will be established on the same sure and satisfactory basis as that on which the treatment of ague now rests."

The questions, therefore, which require consideration are:—1st. Whether quinine, when administered in large and frequently repeated doses, does possess the power of cutting short an attack of fever; and 2ndly. Whether, when so exhibited, its use is otherwise objectionable.

It is not necessary, in discussing these questions, to inquire how far the theory upon which Dr. Dundas bases his treatment is correct; but it may safely be contended, that a generalization so sweeping as that which he makes, requires to be supported by other and more satisfactory evidence than a simple appeal to the writer's experience. The observations which have of late years been so carefully collected in various localities are opposed to this view, and can only be set aside by still more extensive and equally accurate investigations. For my own part, after having paid much attention to what has been written on both sides of the question, and having carefully observed the several forms of fever which fall under our notice, in this and the neighbouring countries, in the localities which afford the best opportunities for studying their peculiarities—Edinburgh, Paris, and London—I have entirely adopted the view that typhus and typhoid are specifically distinct diseases. With remittent and relapsing fevers, from their comparative frequency, I am less familiar, and am in doubt what relation those affections bear to typhoid on the one hand, and to tropical fevers on the other.

The views which we may adopt on these points are however unimportant, as regards the inquiry into the power of quinine in arresting the progress of the continued fevers of this country, embracing under that term typhus and typhoid; for, though Dr. Dundas contends for the identity of those affections with tropical fevers, as an argument in favour of their being arrested by treatment, and disavows any idea that the specific fevers attended with eruption can be so checked, we know that even those affections are capable of being arrested and modified by peculiar states of system, and, if so influenced, it may be contended that they might also be amenable to the influence of remedies. If this can be established in reference to the eruptive fevers, there can be little doubt that the power capable of being exerted over the common continued fevers is still greater.

1st. Attacks of measles, or small-pox, or, to a less degree, of scarlet fever, give, in a large proportion of cases, immunity from subsequent seizures, and most probably attacks of typhus and typhoid possess the same power. Vaccination generally prevents the subsequent occurrence of variola. These results must be dependent upon the production of a change in the constitution which renders it altogether unsusceptible to the influence of the virus.

2nd. When previous attacks of these affections do not prevent subsequent seizures, the second attacks are very generally mild, and only of short duration. Vaccination, when it does not protect the patient from variola, usually lessens the severity of that disease; or, what affords a still more obvious proof of its influence, *after the* symptoms have proceeded, often with violence, to a certain point, *causes the sudden* and entire subsidence of the disease. In these cases the change

produced by the previous attacks, while it does not render the constitution insusceptible to the virus, prevents the disease being fully developed, or, in other words, renders it abortive.

3rd. We not unfrequently observe persons who have never previously had a given contagious disease, on being exposed to the influence of its virus, suffer from febrile attacks, which, though at first threatening, soon subside, and without presenting any specific characters. Such is often the case with children in schools where scarlet fever or other febrile disease is prevailing; with patients in wards containing fever cases, or with students attending hospital practice. In these instances, from some peculiarity of constitution, of the nature of which we are entirely ignorant, the system is not wholly insusceptible to the virus, but the disease is incapable of being fully developed.

In each of these cases, the results of disease, or of individual peculiarity, are analogous to the effects which may be supposed to be produced by remedies employed as prophylactics, or with the view of arresting diseased action already commenced. It is true that the analogy is not precise, for in the former cases, the peculiarity of constitution, whether natural or acquired, exists before the receipt of the virus; whereas, in the latter, the remedy must generally be exhibited after exposure to contagion, or even after the virus has already begun to manifest itself. There seems, however, sufficient reason to believe that what is, in these instances, accomplished by natural causes, might also be effected by the employment of remedial agents. The analogy is still closer as regards the influence often exerted by vaccine introduced into the system, after exposure to the contagion of variola, in either arresting the progress of the disease, or materially lessening its severity. Though, therefore, we do not at present know any remedy which can certainly be referred to, as possessing the power of arresting the progress of a specific febrile disease, there is nothing unphilosophical in our seeking to obtain such; and if this be granted as to the specific diseases, it will be much more readily admitted as to the ordinary continued fevers. The assertion that "we can guide, not cure fever," is, indeed, a mere expression of the extent of our present practical knowledge, not a rule which should be allowed to deter us from the search to extend it. The question as to whether continued fever be, or be not, capable of arrest, is one which is fairly open to investigation, and which must be decided, not on theoretical grounds, but by experimental researches into the operation of remedies, which may be supposed to possess the power of checking the disease.

In prosecuting such experimental investigations we may employ two methods:—

1st. We may have recourse to the special treatment in a portion of the cases which come under our care, and follow the ordinary method with the remainder, without reference to the particular type or character of the two sets of cases. We may then estimate the respective advantages of the modes of treatment pursued, by the relative duration and mortality of the disease under the two systems,—or,

2ndly. We may employ the treatment only in cases which have already assumed a definite form, with the ordinary course and progress of which we are familiar. We can, therefore, by carefully watching the phenomena of the disease, and the operation of the remedy, judge how far its effects are beneficial.

In following both these methods there are difficulties to contend with, for we can never wholly confine ourselves to the use of one remedy, and consequently are apt to be misled in ascribing effects to its use which are due to other causes; but there are also special objections which apply to each plan.

1. In employing the first plan, it is necessary that the two sets of cases compared should be as nearly similar as possible. The ages and sexes of the patients, the periods of the attack at which the treatment is commenced, and the intensity of the disease, should all correspond. The observations should also be collected in the same locality, in the same sphere of practice, and during the same period. All these circumstances materially influence the rate of mortality in fevers, independently of the treatment to which the cases are subjected.

The observations of Mr. Hayward, and those of Dr. Gee and Mr. Eddowes, afford examples of the very different results which may be obtained from similar treatment in the same locality, but under different circumstances. The former gentleman, it will be remembered, had only a mortality of 2·5 per cent. among the cases of fever which he treated with quinine, while the latter lost 14·7 per cent.

of their cases. These different results are, however, at once understood, when it is known that Mr. Hayward's observations were collected in parochial and private practice;—Dr. Gee's and Mr. Eddowes' in a fever hospital. The practice of the former gentleman, therefore, included cases of all degrees of intensity, while the cases treated by the latter were necessarily such as were selected for their severity, to be sent to the hospital. We are all of us familiar with the different types of fever in different localities and at different periods, and thus we obtain very various results while pursuing similar plans of treatment; and it is well known that the mortality at the commencement of an epidemic exceeds that at its decline. It is necessary, therefore, in investigating the power of any remedy or the advantages of any system of treatment, that the cases treated should be similar in all these circumstances before we can safely subject our observations to analysis, or depend upon the inferences which we may deduce from them. Provided, however, the sets of cases do correspond, the inferences founded upon them possess considerable exactitude; but there are still objections which apply to this plan, and which can only be avoided by adopting the second method, or by administering the remedy in cases of fever, the precise form and type of which are ascertained.

1st. It is impossible to predict, at the commencement of an attack of fever, what will be its duration, and consequently to decide, if the disease subside suddenly, whether it have done so from the effect of the remedy employed, or only in accordance with the natural course.

2ndly. Whether we suppose the difference between the typhus and typhoid fevers to be truly specific or only typical, they are such as must certainly affect the curability of the disease; and it is, therefore, quite possible that a remedy which may be very useful in the one form, may be valueless, or even injurious, in the other.

3rdly. The different forms of fever are constantly modified by a variety of different causes, and are liable to various complications, which may all affect the influence which any given remedy may exert. Thus, owing to accidental circumstances, we may obtain results from a given system of treatment which would be entirely erroneous when applied to another set of cases. We avoid these sources of error by adopting the second method of investigation, or by watching the effects of the remedy in cases which have already assumed definite characters. If, however, we were only to employ the treatment in such cases, we should be testing its power of checking the disease, under the most unfavourable circumstances; for it is justly contended by Dr. Dundas, that the probability of our arresting the progress of an attack of fever will be greater the earlier the remedy is had recourse to. This supposition is in accordance with what we know of the power of vaccine in preventing small-pox. Thus, if vaccination be practised immediately a person is exposed to the contagion of variola, it will often take effect, and either check or mitigate the disease; whereas, if deferred till a later period, the influence of the vaccine is entirely resisted and the variola runs its course unmodified.

The only means of avoiding all these various sources of error, is to employ both methods of investigation, and, indeed, while in some cases we have a choice of the plan which we may adopt, in others we have but one course open to us. In private practice we generally see our patients at an early period, and may at once exhibit the remedy without waiting for the disease more fully to develop itself. In hospitals, on the contrary, we can rarely commence our treatment till after the disease has been several days in progress, when the chain of diseased action has fully manifested itself, and thus the second plan is that which is alone capable of being followed.

In the following portion of this paper, I propose to relate the results of the employment of the quinine treatment in fever, both as deduced from the records of St. Thomas's Hospital, and as observed by myself, in cases in which I have followed, more or less exactly, Dr. Dundas's mode of treatment.

[In one case of true typhoid character, ten grains of quinine were given every six hours. Under this treatment, the disease pursued a mild and regular course, and the patient was well in about a month. Many other cases were treated in a *similar* manner, the dose of the quinine varying from five to fifteen grains *according to circumstances*.]

In all these cases the most marked effect produced by the large doses of quinine

was the depression of the power and frequency of the pulse. In one case the beats were only 48 in the minute on the fourth day after the commencement of the remedy, and when sixteen 10-grain doses had been exhibited; and, in this instance, the only other effect produced by the drug was slight frontal headache, and singing in the ears, and the patient steadily improved during its employment. In two cases the torpor and depression of strength increased under the use of the remedy; but, as these symptoms subsided while it was still persevered in, it is not clear whether they should be ascribed to the action of the quinine or to the natural progress of the disease. In one case only was there more than transient headache or vertigo from the use of the remedy; and this was also the only case in which there was very marked tinnitus aurium. In one case there was decided deafness, but, in this instance, the hearing was impaired from the time of the patient's admission. In one of the only two cases in which vomiting occurred, an emetic had been given at the commencement of the treatment. In one case the diarrhœa, previously present, was considerably aggravated under the use of the quinine.

The general results of the treatment may be stated as follows:

1. In one of the cases of typhus, the quinine was certainly not productive of any benefit, and probably added to the torpor and depression of strength. In the other case of typhus it produced the most marked depression, and the patient was only saved by its discontinuance and the liberal exhibition of stimulants. In both cases, though the patients recovered, the disease seemed to follow its natural course, and to be in no degree curtailed in duration by the exhibition of the remedy.

2. In one case of typhoid, the depression of power and torpor increased under the use of the quinine, but the notes are too imperfect to allow me to speak confidently as to its effects. The patient recovered after an illness of average duration.

3. In two other cases of typhoid, the remedy appeared to exert neither beneficial nor injurious effects; the disease followed its usual course, and the patients recovered.

4. In another case of typhoid, it certainly added to the torpor and depression. The remedy was only exhibited in small doses, and for a short period, and was entirely discontinued after six doses had been given, in the course of a day and a-half, and stimulants and other means were then freely had recourse to; the prostration and torpor, however, increased, and the patient died comatose.

5. In the fifth case of typhoid, in which the affection was combined with bilious complication, the quinine was decidedly beneficial, the patient steadily improving under its use. The attack was certainly of shorter duration and less severity than might have been expected from the urgency of the symptoms when the treatment was commenced; but, in this case, the amendment was gradual, and no sudden improvement in the symptoms at any time occurred.

In all the cases the patients had stimulus and support as required, and other accessory treatment, such as astringents, aperients, and anodynes, &c. While also the quinine was exhibited in the various cases in different doses and at various intervals, the different results bore no relation to any of these circumstances.

The facts and observations which I have now related must only be regarded as a contribution towards the solution of the question of the usefulness of large and repeated doses of quinine in the treatment of the continued fevers of this country. So far, however, as they go they are opposed to the views of Dr. Dundas, that quinine possesses the power of cutting short the attack; on the other hand, they indicate that the remedy is, in some cases, beneficial; but only as an auxiliary to other measures. It remains to decide, by more extended observations, in what forms of fever, and under what peculiar circumstances, local and individual, the remedy may be advantageously employed; and whether the quinine is more useful in moderate doses at distant intervals, or in the large and frequently-repeated doses which have been recommended.

There is, doubtless, a mean between the results arrived at by different observers which correctly represents the usefulness of quinine in fever; and I am disposed to believe that the very discrepant statements as to its effects, before quoted, may be reconciled by reference to the various characters of fevers in different localities and seasons, and under *different circumstances*. From an observation [illegible]

narrated, and from somewhat extensive experience of the use of quinine in smaller and less frequently repeated doses, I feel satisfied that the remedy is useful in the bilious type of typhoid, and also in cases which display a remittent character, or have a tendency to relapse. During the course of last summer, the fever which prevailed was very frequently followed by relapses, and in them quinine was eminently beneficial. There is also a form of typhoid which is of frequent occurrence, in which the fever, though never very intense, is extremely prolonged, day after day elapsing without any material change in the symptoms. In affections of this description also, quinine is productive of marked advantage, and much accelerates convalescence. My experience, however, of the use of quinine in such cases, is only of its employment in doses of three to five grains three or four times daily. I am not able to say whether the remedy is more useful in such doses, or when exhibited so as to produce the markedly sedative operation on the vascular and nervous systems, indicating the full physiological action of the drug, and to which the term cinchonism has been applied. Possibly, the different types of fever may affect the dose which it is desirable to employ—the larger doses being preferable, from their sedative effects, in the more sthenic forms; and the smaller, in the adynamic fevers which require a tonic treatment.

It only remains for me to inquire how far Dr. Dundas is correct in his assertion that the quinine treatment, "when not curative, is never followed by the slightest ill effects."

Dr. Goolden mentions that in one of his cases, each dose of the quinine produced headache and excitement, and the remedy was in consequence discontinued after the third dose. In two cases under Dr. Robertson, it is reported to have caused decided coma, and I have already alluded to Dr. Barclay's remarks on this symptom as observed in one of his cases. In one of Dr. M'Evers' patients, it was necessary to discontinue the remedy, from its producing violent headache; and as before mentioned in two of my own cases, it probably increased the depression of strength and tendency to coma, and in two others certainly produced those effects. Contrary, however, to the conclusions of most English observers, M. Briquet infers, that the remedy is useful in calming the watchfulness and delirium of fever; while he agrees with them in regarding it as aggravating the tendency to coma. These facts are certainly sufficient to qualify the assertion of Dr. Dundas, and knowing as we do the serious effects which have been found in France, to follow the use of large doses of quinine (larger it is true than those recommended by Dr. Dundas, as three or four grammes, 46·2 to 61·6 grains), as related by Bretonneau, Trousseau, and others, we should at least exercise great care in employing them. With proper caution, however, and a full knowledge of the physiological action of the drug, should future experience prove, that to obtain the full benefits of the remedy it is necessary to exhibit it in the larger doses, there can be no just objection to its being so used.—*Med. Times and Gaz., Jan. 5, p. 8; and Jan. 19, 1856, p. 56.*

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4. *Sulphate of Quinidine in Intermittent Fever.* By Dr. C. B. Guthrie.—The thirteen cases here reported were treated with quinidine, the subsalt of the new Bogota bark, called by writers *China Bogotensis.* This new alkaloid differs from quinine, and has been esteemed as of less value in the treatment of periodic diseases. This bark is found in the province of Fusagasoga, some twenty-five miles from Bogota, and is generally recognized under the common name of Bogota bark, a name applied commercially to all barks from that region of South America, though including seven or eight varieties, many of which contain both quinine and cinchonine. These cases were reported by Dr. Foote, of Texas, who remarks:—"In none of the thirteen cases did I hear any complaint of its affecting the head unpleasantly, as quinine so often does, though in many instances given in larger doses than we usually administer quinine." He also remarks that from the effects of the quinidine, as exhibited by the cases reported, we are bound to acknowledge its great antiperiodic power. The question with the medical profession is not alone whether quinidine has antiperiodic properties, but whether it *has not this* therapeutical effect without the disagreeable adjuvant found in the *quinine, and also* whether the use of this alkaloid, the product of a bark, not mono-

polized by the English government, may not be less expensive and quite as certain as quinine.—*New York Journal of Medicine.—Dub. Hospital Gazette, Jan.* 1, 1856, *p.* 364.

5.—THE TREATMENT OF SCARLATINA ANGINOSA.

By Pye H. Chavasse, Esq., F.R.C.S.—(Read before the Birmingham Medico-Chirurgical Society.)

[The author of the present paper has had great experience of practice among children. The result of his treatment of scarlet fever has been so uniformly successful that he has not lost a single case for upwards of seven years. He says:—]

The system I adopt, in a case of scarlet fever, is to keep the bedroom cool—I may say cold—and to have a thorough ventilation through it: I, therefore, throw open the windows, be it winter or summer, and have the curtains and valances of the bed removed. If it be winter time, I allow the patient to have one blanket and a sheet; if it be summer time, a sheet only to cover him. If the throat be not seriously affected, I merely order a narrow strip of flannel once round the throat. If the tonsils be much enlarged, I apply a barm and oatmeal poultice to the throat, changing it night and morning. I prescribe an acidulated infusion of roses mixture, that is to say, infusion of roses, with an excess of acid, made palatable with an additional quantity of syrup, to be taken every three or four hours. This is the only medicine I give. Where the child is old enough, I find roasted apples, mixed with raw sugar, very grateful to the patient.

Here let me pause, to advise my medical brethren always to make medicines for children pleasant. The administration of nauseous medicine to children oftentimes causes sickness, disgust, and irritation, which frequently do more harm than the medicine does good.

But to return to our subject: I avoid purgatives in scarlet fever. I never, on any account whatever, give a particle of opening medicine for the first ten days at least. It is my firm conviction, that the administration of purgatives in scarlet fever is a fruitful source of dropsy, disease, and death. When we take into consideration the sympathy that there is between the skin and mucous membranes, I think that we should pause before giving irritating medicines. The irritation of purgatives on the mucous membrane may cause the poison of the skin disease to be driven internally to the kidneys, throat, pericardium, or brain. You may say, Do you not purge if the bowels be not opened for a week? I say emphatically, No!

Now with regard to food. If the infant be at the breast, keep him entirely to it. If he be weaned, and under two years old, give him milk and water, and cold water to drink. If he be older, give him toast and water, and plain water from the pump, as much as he chooses; let it be quite cold—the colder the better. Weak black tea, or thin gruel, may be given, but caring little if he take nothing but cold water, unless he be an infant at the breast. Avoid broths and stimulants of every kinds.

Now, you must warily watch for a change of temperature of the skin. As long as the skin is hot, the above plan I steadily follow; but the moment the skin of the patient becomes cool, which it will do probably in five or seven days, instantly close the window, and immediately put more clothes on the bed. But still do not purge.

You will find the acidulated infusion of roses most grateful to the little patient; it will abate the fever, it will cleanse his tongue, it will clear his throat of mucus, it will, as soon as the fever is abated, give him an appetite. I believe, too, the acid treatment has some peculiar properties of neutralising the scarlatina poison. I do not pretend to explain how, or why, or wherefore.

When the appetite returns, you may consider the patient to be safe. The diet must now be gradually improved. Bread and butter, milk and water, and arrowroot, made with equal parts of milk and water, may be given for the first two or three days. Then a light batter or rice pudding may be added; and, in a few days afterwards, a little chicken, or a mutton chop.

Within the last few years, I have had some fearful cases of scarlet fever; but,

relying on this plan of treatment, I have given, even in very bad cases, a favourable diagnosis. I have had cases where there have been violent headache and delirium; where there have been immense swellings of the parotid and submaxillary glands; where there have been enormous enlargement and ulceration of the tonsils; where a great portion of the fluid that has been taken by the mouth has escaped down the nostrils; where there has been a purulent discharge down the nose, which discharge has in many instances quite excoriated the skin over which it has travelled;—and yet in such cases the patients have invariably recovered.

There is another important regulation I lay great stress upon. I never allow a scarlet-fever patient, even if the attack be mild, to leave the house under the month in the summer, and then not if the wind be in the east or north-east; nor under six weeks in the winter. During the last seven years, I have never had anasarca from scarlatina; and I attribute it entirely to the plan I have just recommended, and in not allowing my patients to leave the house under the month —until, in fact, the skin that has peeled off has been renewed. Dr. Watson, in his valuable lectures, gives some excellent advice on this subject. From the sixteenth to the thirtieth day I watch the case assiduously, to assure myself that there be no dropsical approach, carefully examining the urine, ascertaining that there be plenty of it, and that it be not albuminous.

Let me now sum up the plan I adopt:—

1. Thorough ventilation, a cool room, and scant clothes on bed, for the first five or seven days.
2. A change of temperature of skin to be carefully regarded. As soon as the skin is cool, closing the windows, and putting additional clothes on the bed.
3. Infusion of roses, with an excess of acid, sweetened, the only medicine to be given.
4. Purgatives to be rigorously avoided for the first ten days at least, and even afterwards, unless there be absolute necessity.
5. Leeches, blisters, emetics, and cold and tepid sponging, inadmissible in scarlet fever.
6. A strict antiphlogistic diet for the first week, during which time cold water to be given *ad libitum*.
7. The patient *not* to leave the house in the summer under the month; in the winter, under six weeks.

My firm conviction is, that purgatives, emetics, and blisters, by depressing the patient, sometimes cause scarlatina angina to degenerate into scarlatina maligna; for although I have had numerous cases of scarlatina anginosa (my practice being much among children), and some of the cases very severe ones, I have never had, since I have adopted my present plan of treatment, one single case of scarlatina maligna. I have such faith in my present plan of treatment, that if it be duly followed out, I should seldom despair of even the worst of cases recovering.—*Association Med. Journal*, *March* 15, 1856, *p.* 211.

7.—ON SCARLATINA, AND ITS RELATIONS TO RHEUMATISM, CARDITIS, AND ALBUMINURIA.

By Dr. W. Hughes Willshire, Assistant Physician to the Charing-Cross Hospital, &c.

[The complications of scarlet fever are very numerous, and will be found amply treated of in works on the subject; but rheumatism is one of those which, though common, has been but very cursorily noticed, excepting within the last few years. In 1851, Betz, of Heilbronn, drew particular attention to it, and went so far as to hint at an essential relation between acute rheumatism in the child and scarlet fever.]

He implies, at least, that an arthritic affection in young children often could not be told from the exanthem in question. That he had seen albuminuria and desquamation of the skin in acute rheumatism in children who had shown no exanthematous eruption; and, on the other hand, that the eruption was not an *essential symptom* of scarlet fever, leaving it, therefore, a very difficult, if not *impossible, case in* which to arrive at a differential diagnosis. In 1853, M. Trous-

sean stated that he had very frequently met with the complication we are speaking of; that the arthritic disorder sometimes, though but rarely, became generalised, and attained a high degree of intensity, accompanied by delirium and other nervous symptoms terminating in death. In 1854, I myself read a paper before the Medical Society of London on Rheumatism in Children, in which I adverted to its union with scarlatina (reported in 'The Lancet,' 1854, vol. i. p. 188); and a few months afterwards, Mr. Haydon, of Bovey Tracy, communicated some very interesting facts in 'The Lancet,' in reply to a commentary, as it were, upon my paper. You will find Mr. Haydon's communication in the first volume of that journal for last year. This gentleman has had some very corroborative experience and states, that although he cannot coincide in the views I have detailed of Betz, he admits there is a remarkable analogy between the phenomena, especially the secondary ones of the two diseases; and that so closely does he consider the two related that he makes it a rule, on the decline of the rash in scarlet fever, to administer lemon juice. I strongly advise you to read Mr. Haydon's remarks, and then to turn to Betz's paper, which you will find in the eighteenth volume of the 'Journal für Kinderkrankheiten.' In both essays you will find how easily certain cases of the two affections—I say certain cases, mind—might be confounded together.

If we were to take extreme forms of the two diseases—viz., on the one hand, an almost universally bright-red child, with sore-throat, strawberry tongue, who had been known to have been with other children similarly affected, and on the other hand, a pallid, scrofulous child, without any cynanche, with a white-coated, moist tongue, and swollen and painful joints, there would certainly arise, I should say, no difficulty about the matter. But you must recollect scarlet fever is not always of this characteristic appearance; the sore-throat may be next to nothing, or absent; the rash only evident about the joints, which may be a little puffy and painful; the tongue but moderately and simply coated, and the child not known to have been directly exposed to the zymotic virus. On the other hand, if what is stated be true, albuminuria may be temporarily present in rheumatism, as also, according to Betz, desquamation of the cuticle. Now, in a case presenting such equviocal signs as I have hinted at as possible, I do not know that from these signs alone, and from these only, the differential diagnosis could be perfected. But this I must believe, from my own experience up to the present, that the further course of the malady, together with the commemorative history of the patient, would not fully help me out of the difficulty. The difficulty, in truth, has not yet occurred to me; but let me tell you that in India and in America a somewhat analogous one has happened to others, and from this, and what you will glean from Dr. Betz and Mr. Haydon, it is not impossible we might hereafter have a case occur amongst us, or an epidemic disorder, which should have such a mixture of the symptoms of rheumatism and scarlatina that we should be much puzzled to give it a satisfactory name.

A late patient of mine had been surrounded by the scarlatinal poison; she had sore-throat, diffused red efflorescence; the tongue and even breath were those of scarlet fever. The rash subsided, desquamation just began around the neck, when pains of the ankle and wrist-joints came on; the parts were swollen and shining, and a kind of secondary fever was lighted up. Now, whatever might be thought of this latter affection, the former was clearly *not rheumatism*. That there is some obscurity about the exact nature of a disease occasionally attacking not only children, but adults, and marked by arthritic pain and tension often of a severe character, accompanied by a scarlet rash, is plain from the accounts given by some American and East and West Indian practitioners. For instance, in 1824, 1825, and 1847, outbreaks of a disease like the one I have just mentioned occurred in the East Indies. In the summer of 1828, the malady appeared epidemically in some of the southern cities of the American Union, after having previously prevailed in some of the islands of the Gulf of Mexico. In Charleston it spread with great rapidity, ultimately attacking almost the entire population. In this latter city the last occurrence of it that I have found recorded was in 1850, and is alluded to by Dr. Dickson, of South Carolina. In Calcutta, again, during the hot and rainy season of 1853, a variety of the same affection prevailed, and has been well discussed by Dr. Goodeve in the first volume of the 'Indian Annals of Medical Science'

for that year, and to which I must refer you. Now, this disease has been called *scarlatina rheumatica* by Cocke and Copland, *exanthesis arthrosia* by Nicholson, and the strange cognomen of *dengue* has been popularly bestowed upon it. I have said that the first account of this disease goes not further back than 1824; but it is proper I should mention that Dr. Dickson, of Charleston, writes as follows:—"I recognise Rush's 'breakbone fever' of 1780 in Philadelphia as the first notice of a malady such as I have called dengue;" and Dr. Waring, of Savannah, alludes also to dengue under the title of "eruptive breakbone."

I cannot go into the details of this peculiar disorder; indeed, I have only alluded to it to show you that there occurs a fever, accompanied by arthritic pains and a red exanthem, whose true relations to scarlet fever yet require clearing up. However, I may just remark, that Dr. Dickson regards dengue as a distinct contagious disease, giving immunity from second attacks, and that it is *not* scarlatina; whilst Mr. Goodeve states that most of the symptoms characteristic of the latter affection found expression in some of the cases occurring in Calcutta. He says, "the fever eruption, reddened mucous membrane and tonsils, desquamation of cuticle, swelling of hands and feet, state of the tongue, albuminous urine, are all such as go to make up scarlatina; but it would be premature to assert that the cause is identical with that of scarlatina. I should say that it would require a longer series of observations of several epidemics, with careful examination of all the attendant circumstances, before we could pronounce the diseases to be identical." Again, Dr. Copland affirms, that the disease called dengue "was not a form of scarlatina is shown by the severity of the rheumatic or neuralgic symptoms," &c; and "that it was not a rheumatic fever was shown by the undoubted propagation of it by infection," &c. I see that in some later observations by Dr. Mackinnon, in the third number of the 'Indian Annals,' he doubts whether any of the epidemics of India described as attended by red efflorescence of the skin can be identified with any of the varieties of the scarlatina of Europe, denies the disease we have referred to to be contagious, and for which, he says, the name of "the red fever" is as good a name as any other.

On reviewing the different accounts given by Indian and American writers of this puzzling affection, the disease appears in certain places, and epidemics, to have had more the characters of rheumatism; whilst in others it has had more those of scarlatina. The case mentioned may be said to illustrate, so far as my own experience extends in respect to the relations between scarlatina and rheumatism, one form of the arthritic complication—namely, that occurring early in the course of the exanthematous disease. When it so occurs, the specific inflammation about the joints terminates, like primary or idiopathic rheumatism, in resolution or delitescence. But it may take place at a later period of the disease, when all has been thought to be over. It occurs after desquamation has made some progress, and then may terminate in the suppurative crisis. Now, this is peculiar about the rheumatic inflammation generally of young children; unlike in adults or older children, it may lead to purulent effusions into joints, and also about them. I have known this to occur in several instances, and it is more liable, I believe, to ensue in the secondary rheumatism of scarlatina. This is a fact well known to others. If I recollect aright, Dr. Kennedy, of Dublin, has published something upon it, and Trousseau, I know, states that scarlatinal rheumatism is often more dangerous when localized to a single joint, than when attacking several articulations at one time, as it is then more inclined to terminate in suppuration, and even eventually to result in caries of the articulating surfaces. This circumstance, however, of the arthritic inflammations of infants and young children, not unfrequently terminating in the formation of matter, has led some pathologists to deny the true rheumatic nature of the disease in question. I must confess, too, it does seem to me not improbable that the results of pyohæmia, or purulent infection, of phlebitis, umbilical or otherwise, may, along with other forms of abnormal action, have been occasionally placed to the credit of ordinary rheumatic inflammation. But Mr. Henry Lee, who has paid great attention to the subject of purulent infection, states that he has seen, as the result of the absorption of sero-purulent fluid from an ill-conditioned abscess, very severe rheumatism, affecting, in some instances, *the pericardium* and dura mater. In these cases there was occasionally more fluid *secreted than* in ordinary rheumatism, but in milder examples there was no such

distinctive mark; they are said to have been "in every sign and symptom apparently identical."

I have undoubtedly seen cases in children, which I should not have known from rheumatism, terminate in the suppurative crisis. If it be said, then such cases therefore could not have been rheumatism, the argument is of course settled; but it appears to me only so by a *petitio principii*. In adults, again, rheumatism does occasionally, however rarely, terminate in the formation of matter. In this case of mine some mischief ensued certainly to the mitral, if not also to the aortic valves. It may be but slight, still there it is, and may lay the foundation for changes in after years connected with the walls of the heart's chambers. The abnormal sound (which some of you have listened to) at the apex is very loud, but this is not proof of the amount of structural mischief at the mitral, for there may be much noise and slight change, and but little noise and great alterations. The former, I hope, is the case here; but from the pulse being so small at the wrists, my hope is not to be too much trusted to. A German pathologist affirms it to be a general thing in scarlatina for the first sound of the heart to be aspirated or blowing, which is a result of the altered state of the blood, and not of the valves, and is a proof that scarlatina and all its complications arise from one common blood disorder. I presume he must mean to refer only to the sound at the base, and not at the apex (where our worst one is), of the cardiac region. Sounds at the base may be of hæmic origin, but at the apex they are, I believe, always of structural derivation.

The liability of the heart to become affected during scarlatina has been known for some time. Roux in 1819, and Krukenbergius in 1820, are said by Rilliet and Barthez to have referred to the occurrence of pericarditis in connection with scarlatina and measles. Trousseau says Bouillaud pointed it out; but certain it is Mr. O'Ferrall, in 1835, detailed to Dr. Graves, of Dublin, how he was obliged to have recourse to leeching, calomel, and James' powder, to overcome acute pericarditis in connexion with scarlatina. Several later writers, as Burrows, Willis, Joy, &c., have noticed this complication; and not long ago, M. Trousseau stated it as his belief that "many cases of organic disease of the heart, which only become evident at an after period, have had their origin in scarlet fever." But, so far as I know, we are most indebted to Dr. Scott Alison for prominently bringing this matter before our notice, though it has been said that the frequency of the complication has been somewhat exaggerated. You will find Dr. Alison's original paper in the 'Medical Gazette' for 1845. The case I have mentioned makes the third one of heart complication during scarlatina that I have seen, and here it has occurred in connexion with an arthritic affection. One might, *à priori*, suppose the sequences of the phenomena would always thus present themselves, but it seems that it is not so, as the involvement of the cardiac organ is alluded to by writers, as well as seen by myself, without the arthritic affection having preceded or accompanied it. I find it remarked that in the Stuttgard collection of papers on "Children's Diseases," the occurrence of purulent collections in the pericardium during scarlet fever is mentioned by Von Ammon, whilst effusion of pus beneath the periosteum and in the substance of muscles has been recorded by others. It is, therefore, possible that the rheumatism in this case had, in one sense, nothing in itself to do with the cardiac affection, but that both were the effects of one same and common cause, and that this cause was the same condition of the blood which gave rise to every other manifestation of the scarlet fever.

But it is said that the rheumatism occurs, like the dropsy, from unnecessary or incautious exposure of the child to cold; whereas, in the latter case, we find the disease will come on where no such exposure was known to have taken place. We frequently find this secondary rheumatism occur without any cardiac involvement arising, while the primary form, in children, is very far more apt to include the central organ of the circulation within its grasp than at other periods. Had it been my intention to treat of scarlatina or rheumatism substantively, I must, when speaking of the nature of these maladies and their complications, have said much about uric and lactic acids, of urea in the blood, of a specific poison, of the necessity of that poison being eliminated from the system, of the peculiar irritative action of urea or some other poison in the blood upon the serous membranes, of an elective affinity in scarlatina for the kidneys, and many other topics of the

like nature. But I should have felt it my duty, to have impressed upon you at the same time, that these would but have helped us to hypothetical and very obscure explanations of points which it must be confessed an exact and valid pathology is not as yet able to include within its grasp. All that I now lay stress upon, therefore, is a certain observed sequence of phenomena—*Scarlatina*, *Rheumatism*, and *Heart-disease;* a sequence observed sufficiently often, and under such intimate relations of time and place, to warrant us in associating these phenomena in casual connexion, however the true relations of this connexion may be afterwards definitely fixed. I would also, in conclusion, recall to your memory, that whilst we have had recorded experiments on animals, in which the kidneys have been removed, or the ureters tied, &c., and cases related where the secretion of urine has been suppressed from stoppage of the ureters by calculi and new formations, and which cases and experiments have been followed by vomiting, dryness of the tongue and mouth, &c., intense thirst, altered or husky voice, serous profluvia, great perspiration, convulsions, deep stupor, and death. I am not aware that dropsy, affections of the synovial membranes, of the pleura, or of the pericardium have followed, as in scarlet fever.—*Lancet, Dec.* 1, 1855, *p.* 517.

7.—*Treatment of Ague by Iodide of Potassium.* By E. F. Sankey, Esq., Beckley, Sussex.—[Cases of ague are not uncommon which resist the usual treatment by quinine, arsenic, &c.; it was in such cases that Dr. Williams some three years ago recommended the bromide of potassium; this is a remedy which is not always at hand, and from the following statement it appears that the iodide of potassium will act equally well, for the author has used it in more than a hundred cases, and with a uniformly favourable result.]

In some cases, where the disease has been of long standing, and the patient very much reduced, I have added a grain or two of quinine to each dose of the iodide of potassium; but my general prescription has been for an adult—

℞. Potas. iodid. 3 iss; aquæ menth. pip. ℥xij. M. Coch. mag. ij. 4tâ quâque horâ sumend.

So that there could be no doubt what was the remedy that cured the disease. In proof of the value of this drug, I will only mention one case out of all that I have thus treated.

Mrs. Smith, aged 50, sent for me early last month, having suffered from tertian ague, off and on, since September. Not being in very good circumstances, she went to the clergyman's wife of the parish in which she resided, who very kindly gave her some quinine, telling her it was no use sending for the medical man, as he *must* give her the same remedy. However, not getting well, she sent for me. After hearing what I have related, and finding that she had a tolerable pulse, her bowels open, and motions healthy, with a clean tongue, I sent her nothing but the above mixture; and she never had a return of the ague after the second dose she took of it.—*Association Med. Journal, March* 15, 1856, *p.* 221.

8.—ON THE NATURE AND TREATMENT OF ACUTE RHEUMATISM.

By Dr. Joseph Bell, Physician to the Glasgow Royal Infirmary.

[By tracing the resemblance between rheumatism and other affections in which the blood is disordered, we may be enabled to apprehend more clearly the relation which rheumatism holds to general disease, and the peculiar character of the deterioration which exists. We may include blood diseases under two heads: 1st. Those produced by a morbific matter taken into the system from without, as typhus and the exanthemata. 2nd. Those which originate within the body, as scurvy, purpura, anæmia, &c. We know that rheumatism is intimately connected with affections depending on an altered condition of the blood, characterized by a depressed state of the system, and occurring in the ill clothed, and badly fed, after exposure to cold and damp, whereby the materies morbi is produced. There are *points of* great dissimilarity between rheumatic fever and other fevers. Typhus

and exanthematous fevers originate from the absorption of poisons from without, and recovery is chiefly brought about by the physiological powers of the system overcoming the pathological influence of the poison.]

In rheumatism, the morbid poison *originates within the body*, and exercises its pathological influence on the fibrous and serous tissues, and recovery is effected principally by the physiological powers of the system. Thus we easily perceive the sources from which the resemblances and the differences in the phenomena of these allied diseases originate. On the one hand, exanthematous and typhus fevers depend on the presence of a morbid poison *absorbed into the system;* on the other, rheumatic fever arises from a morbid poison *generated within the system.*

This leads us, in the next place, to the comparison of the phenomena of rheumatism with those affections included under the second division of blood diseases, viz., diseases which depend on the deficiency or morbid alteration of some element which forms an essential constituent of the blood—such abnormal changes originating within the body. Modern pathologists have subdivided this class of diseases into two sections:—1st, Diseases produced by a morbific matter originating in an abnormal *chemical action* in the blood itself, taking place during the period of secondary assimilation, and often depending on deficient excretion. 2nd, Diseases arising from a simple deficiency or alteration of some of the constituents of the blood.

It is the favourite theory of the day to ascribe rheumatism to the first, and scurvy, chlorosis, &c., to the second division. Dr. Todd observes, "that the tissues which belong to the gelatinous and albuminous classes are chiefly composed of those proximate elements, from the decomposition of which, in the wear of the system, three great secondary organic compounds—urea, lithic acid, and lactic acid—are produced." In rheumatism, it is alleged that, in consequence of an abnormal chemical change, these products become deranged—lactic acid predominates, and produces the phenomena of the disease—it is the real *materies morbi*. The same author adds, "that the imperfect assimilation and vicissitude of temperature induce an accumulation of fibrine in the blood; hence the increase of lactates in the perspiration and urine." In other words, from the mal-assimilation and excretion of the effete fibrinous tissues, and from exposure to cold, checking perspiration, this fibrine is converted into lactic acid, which attempts to find its exit through the skin. In the language of Dr. Prout, "on these suppositions we may explain the formation of the large quantities of lactic acid usually present in rheumatic affections." Thus we have the disease placed in direct opposition to gout, in which the lithates prevail—uric acid being considered the *materies morbi* in this affection. When the case is of the hybrid character, denominated rheumatic-gout, then it is affirmed that both lithic and lactic acid abound in the blood. Or in other words, the uric acid is content to direct its operations against the *small joints*, whilst it leaves the more dignified assault of the *large joints* to its ally, the lactic.

It is amusing to hear some of the small fry of the profession confounding these two supposed conditions of the blood. It is not uncommon to find practitioners treating rheumatism by remedies calculated to decompose lithic acid. These gentlemen plume themselves for acting on scientific principles, whilst the very leviathans which they attempt to follow, affirm that such a substance is never present in rheumatism, unless the complication of gout exists. Indeed, the advocates of the lactic acid origin of rheumatism are very apt to dazzle even the most cautious, by the beautiful formula which they produce.

The chemical symbols, 10 Pr × $SP\frac{1}{4}$ (fibrine), $C^2\ H^4\ N^2\ O^2$ (urea), $C^{10}\ N^4\ H^4\ O^6$ (uric acid), HO, $C^6\ H^5\ O^5$ (lactic acid), and those of a few other organic compounds, are placed on the black board; decompositions and new combinations are so beautifully and scientifically sketched, we feel almost ashamed to harbour a doubt that such changes actually take place in blood. If we have courage to withstand the teachings of this romantic pathology, we must be content to be viewed as insensible to the claims of true science. If we strip away the gaudy tinsel trappings with which fancy and imagination have adorned this subject, we will find ourselves in great darkness regarding, not only the nature, but the very existence of any such elaborate transformations as we find drawn up by disciples of this kind of pathology. They resemble very much the painters of the old French school—their pictures are representations of ideal and not of natural existences.

This is too grave a subject to be treated with levity or ridicule, because the fashionable *eliminative* treatment of rheumatism is founded on this very theory, and which obviously embraces three considerations.

1st. The alleged primary cause, namely, deficient excretions.

2nd. The effect of which is to set up an abnormal chemical change during secondary assimilation, and thereby, in the third place, lead to an accumulation of effete tissues, and consequent generation of lactic acid, the supposed *materies morbi*.

1st. *Deficient Excretion.*—The kidneys and the skin are considered as the two eliminating organs principally at fault in rheumatism, being viewed as the two depurating organs of the blood from its effete tissues. It is entirely overlooked that the excretions formed by these organs are taken from *arterial* blood. In fact, the skin and kidneys are thus made *to purify* that which is already *pure*. Doubtless, some physiologists of great eminence, perceiving this difficulty, have attempted to convince us that the principal part of the urinary secretion is formed from the capillary veins which surround the tubuli uriniferi—that we have in the kidneys a venous system analogous to the portal. This special pleading should not delude us, when we have before us this important difference, that the veins of the kidneys receive their blood from the capillaries, *only of the renal artery*, whilst the portal veins receive the contents of the various tributaries from the chylopoietic viscera. It has not been shown that the blood in the emulgent veins is *purer* than arterial blood; on the contrary, the contents of these vessels have all the characters of venous blood—deficient in all nutrient properties, and return to the right side of the heart to be transmitted to the lungs for *purification*.

The same remarks will apply to the skin. The excretions of this extensive and complex organ are formed from arterial blood, which afterwards passes into the venous capillaries, and is returned to the heart as contaminated blood.

That the skin and kidneys exercise most important influences on the conditions of the blood in relation to its nutritive qualities, cannot be doubted. It is not my object at present to enter on the discussion of the nature of these influences, but to expose the fallacies which abound in the chemico-pathological fashions of the day, especially in reference to the disease under consideration. If we would reflect on that which we really do know of the functions of the kidneys and skin, we would not so readily adopt such evident absurdities. We are almost entirely ignorant of the physiology of the excretions. Thanks to Bernard, we are beginning to gain some knowledge of the hepatic functions; but if we sit down and carefully analyse the various theories, we will find the whole subject involved in a perfect chaos—speculative notions obscuring the few facts which have been demonstrated.

From the foregoing observations we are entitled to conclude, that we have no evidence that any morbid poison or agency is introduced into the system in consequence of deficient excretion. If, therefore, the alleged cause cannot be demonstrated, it follows that the supposed effects must be less capable of proof. It may be said, however, that the deficient excretion is only by some considered as a probable explanation; and we may have the abnormal conditions of the blood present, though erroneous opinions exist as to their production.

3rd. Let us, in the third place, examine the doctrine of the origin of rheumatism from the non-conversion or elimination of the effete tissues.

These originate in all the structures of the frame; their greater portion, if not all, are taken up by the absorbents, and pass through the extensive system of lymphatics, and become converted into lymph, a fluid nearly identical in composition with chyle, and is poured along with it into the mass of venous blood previous to its entrance into the right side of the heart, to be sent through the lungs, and returned as pure arterial blood to the left auricle. A portion of effete matters is said to be taken by the veins. If any change be effected on them in these vessels it is unknown to us, but in the lungs a transformation undoubtedly takes place. The lymphatic glands and the lungs appear to be the only converting or assimilating organs, to the agency of which the effete matters are subjected. It is worthy of remark, that the lungs do not act on these broken-down tissues in their effete condition, but when they have become converted into lymph; just in the same way as it is upon the chyle *that the functions* of respiration act, not on the unconverted food. The lymphatic *system stands* in the same relation to the reduction and digestion of the effete tissues,

and their transformation into lymph, as the stomach and its accessory organs hold to the decomposition of the food and its conversion into chyle. Both chyle and lymph are the products of a most complex and elaborate series of changes, the nature of which chemistry has not discovered, and of which we can only judge by the results. It has been argued that the blood is a vital fluid, possessing in itself the power of effecting chemico-vital changes, and that its own constituents are elaborated within its vessels to the highest degree of animalization. These views are very plausible, and it may be admitted that their correctness is within the limits of possibility; but, on the other hand, we know that the blood, when it enters the left auricle, is endowed with its nutritive properties so far as *force* is concerned. No doubt a further *force* is required to apply this arterial fluid to the renovation of the tissues. However, the action of this *force* does not tend to give the blood a higher degree of vitality, but the very reverse, reducing it nutritive powers and changing it into venous blood.

We therefore perceive that we have no proof of any such abnormal transformations taking place in the assimilation of the effete tissues, in consequence of deficient excretion, as is affirmed to occur in rheumatic fever.

Let us next compare the state of the blood in rheumatism with the condition that exists in diseases belonging to the second division; viz., those depending either on deficiency or altered condition of some of the essential constituents of the fluid.

The examinations which have been made of the blood drawn from rheumatic patients clearly establish two things:—First, That the fibrine is increased. Secondly, That the red globules are diminished. These two facts intimately connect the disease with anæmia, and other diseases of a low character, showing most clearly that rheumatic fever depends on derangement in the nutritive relations which exist between the blood and the fibrous and muscular tissues. Simon, following Zimmerman, regards the fibrine of the blood as originating from the effete nitrogenous tissues, and not, as is usually considered, the highest product of assimilation. In this way he accounts for the presence of the high amount of fibrine in the blood, and the supposed excess of lactic acid. I say supposed, as its presence in the blood has not been satisfactorily demonstrated. Though these views are highly plausible, yet we can more readily account for the state of hyperinosis on other grounds. Whenever the nutrition of the fibrous or muscular tissues becomes deranged, the quantity of fibrine must be altered, whether that derangement arises from local or general causes—whether the disease originates in the tissues themselves, or in the blood.

If from mal-assimilation an imperfect fibrine be elaborated, the nutrition of the tissues will become deranged; if, on the other hand, the structures become unable to convert the fibrinous constituent of the blood into their own structures, we shall have the constitution of the blood altered; hy perinosis, in both cases, will be the result. In the present state of medical science, we are not in a position to give this matter a satisfactory explanation. In the meantime we should rest content with the knowledge, that in rheumatism we have too much fibrine in the blood, and too few red globules; these two circumstances connecting the disease with anæmia, phthisis, &c.

Besides Dr. Todd, Dr. Fuller, and Mr. Simon, already quoted, other able and accurate observers have pointed out this anæmic character of the disease. Dr. O'Ferrall has published some excellent remarks on this subject in the Dublin Press and Medical Times, Sept. 10, 1849. From repeated observation, "he has been led to the conclusion that the natural tendency of the disease, in its advanced stages, is to produce a diminution of the hæmatosin of the blood. He has frequently detected anæmic murmurs over the heart, and the cervical vessels disappearing under the use of chalybeates, as in ordinary chlorosis. In an able paper on Tropical Rheumatism, read at a meeting of the Harveian Society, Jan. 16, 1851, by Dr. James Bird, we find similar observations on the asthenic form of the malady:—"In all," he observes, "the sudden or continued influence of damp, cold, malarious air, by producing a powerful impression on the skin and nervous system, might be set down as the first link in the chain of changes connected with the generation of *materies morbi* in the blood. The equilibrium of healthy nutrition was disturbed, the tissues ceased to appropriate true nutritive materials, and the assimilating functions of the stomach and collatitious viscera were deranged."

Numerous quotations of the same character might be made, all confirming the doctrine of the asthenic nature of rheumatism, and all pointing out the existence of altered nutritive relations between the blood and the muscular and fibrous tissues. The origin of this disordered nutrition is unknown. Undoubtedly there exists something in the disease beyond the mere hyperinosis of the blood, and diminution of the hæmatosin, that induces a morbid tendency to deposition of fibrine. This cause, so far as we know, seems to be generated *within* the blood. It is quite possible, however, that it may have an *external origin*. Be this as it may, it must appear obvious that this disorder of the nutritive relations is also the first evident link in the chain of morbid processes observed in typhus and exanthemata. In these affections the forces of nutrition are disturbed by the influence of morbid poisons absorbed from without, and effecting such modifications of function, that the patient not unfrequently sinks under the disease, without presenting any tangible trace of structural change.

Again, in the second division of blood diseases, we have nutrition modified in consequence of derangement originating within the system, and ultimately involving all the functions, and often producing structural changes. In rheumatism, we have seen that the same disordered condition of the nutritive forces exists, the *materies morbi* of which, in all probability, originate within the system, but producing high constitutional excitement, in all cases, whatever may be the extent of the local suffering, which is merely an associated condition of the general disturbance. Rheumatic fever, therefore, partakes of the character of both classes of blood diseases; its general phenomena connecting it with those of the first, and its origin from causes generated within the system, as well as the condition of the blood itself, associating it with those of the second division.

Abnormal alterations or modifications of nutrition are the *fundamental bases* from which all these affections spring, the difference in their respective causes giving rise to the diversities which their phenomena exhibit.

The following objections may be urged against the asthenic nature of rheumatism:

1. The state of the joints.
2. The existence of hyperinosis points to an asthenic condition of the system.
3. The state of the pulse.
4. The high-coloured and scanty urine.
5. The occurrence of pericarditis and endocarditis.
6. The beneficial effects of antiphlogistic treatment.
7. The frequency of cardiac disease.

1st. *The State of the Joints.*—This pathological condition cannot be viewed as a genuine inflammation. The rapidity with which the swelling and redness subside, and fly about from one joint to another, without leaving any structural change, settles this question.

2d. *The Increase of Fibrine.*—This we find occurs with as much regularity in anæmia, phthisis, and other diseases connected with depressed conditions, as it does in the most acute inflammations. We also know that the fibrine, instead of being diminished by bleeding, is actually increased; and, again, we must bear in mind that there is a deficiency of the red globules in rheumatism.

3d. The pulse in rheumatic fever is doubtless full and bounding, but this does not indicate augmented vital power, but the reverse. The pulse is always easily compressible; in fact it is not the pulse characteristic either of congestion or inflammation, but the one distinctive of "excitement without power."

4th. Though certainly the urine is high-coloured and scanty, and deposits lithates largely, yet it does not follow from this that the disease is one of an inflammatory character. In phthisis, and other affections of debility, we have the same circumstances occurring. The excessive perspiration which generally takes place in rheumatism will affect the quantity of the urine, and the hyperinosed state of the blood will account for the increase of deposits. Becquerel mentions a curious fact regarding the urine of rheumatic patients; viz., that immediately after a large bleeding, the urine assumes all the characters of the secretion in anæmia.

5th. *The Occurrence of the Pericarditis and Endocarditis.*—Here it may be triumphantly said, you must admit that we have a true and genuine ——itis. I have already pointed out, that at first we may have a mere congested condition of *the fibro-serous* membranes of the heart, ending in effusion, just as we see taking

place about the joints; but that the anatomical relations of the coverings of the heart are such that these conditions cannot exist for any length of time without producing organic disease.

Mr. Simon justly remarks, that "on the supposition that these vegetations are inflammatory effusions from the membrane, I should be quite unable to explain why they should almost entirely confine themselves, as they do, to the valvular apparatus, and why their predilection for the left side should be so great, that the right is very rarely affected, perhaps never, except where the left has first suffered, and where the disease has been of such extreme intensity, that even its weaker affinity for the right side has been able to manifest itself. The opposite doctrine is the more tenable one. I believe that the origin of these vegetations is directly humoral—that they arise as fibrinous precipitations from an overcharged solution, the valves encrusting themselves with fibrine. . . . . The disease in which these deposits are so frequent is one of intense over-fibrination of the blood, and one in which almost certainly there are other conditions, besides quantity, making the fibrine easy of precipitation. . . . . Many people bleed locally, or even generally, when they hear an endocardiac murmur arising in the course of rheumatic fever. In their eyes the new disease is endocarditis, and everything ending in *itis* is thought, in at least a majority of instances, to be benefited by bleeding. Therefore, gentlemen, do not be in a hurry to call it endocarditis; and as for bleeding, all that I would venture to say (for, of course, the treatment of this physician's disease does not fall within my province), is to assure you of the pathological fact, that you may bleed a patient to death, without altering, except probably to increase, the proportion of fibrine in the blood."

It is almost unnecessary to say, that I fully concur in the above views held by this enlightened physiologist. Even when endocarditis does take place, it by no means follows that rheumatic fever is of a sthenic character. The endocardial complication may result from the precipitated fibrine.

6th. *The alleged beneficial effects of Antiphlogistic Treatment.*—By a careful examination of the cases so treated, it will be found that this active treatment is by no means universally successful, the attack often lasting beyond one month. M. Bouillaud's thirty-six cases had an average duration of four weeks. Dr. E. Monneret has made some interesting observations on this point. He bled in nineteen cases with freedom, and the result he states to be, that the patients thus treated remained in the hospital as long as those treated by other remedies. He concludes by stating, that "when the symptoms are not relieved by the blood-letting within the first four or five days of the invasion of the disease, it is in vain persisting in the abstraction of blood. The practice then is only injurious. Bellows murmurs are set up in the heart and great vessels, the surface becomes drenched in sweat, the sleep is disturbed, the pulse is rapid, and the pains, far from diminishing, flit about from one joint to another, or remain obstinately fixed in those that were first attacked." In other words, depletion only reduces the patient, and renders his recovery more difficult. I have carefully read over numerous successful (?) cases treated by blood-letting, and I find that when the attack was of a short duration, the patients were of robust habits, a class of persons in whom the disease is never very protracted. I venture to affirm, that these supposed recoveries held but a trifling relation to the mode of treatment, the strength of constitution enabling the patients to withstand the debilitating influences of the remedy and the disease.

We therefore find that these objections do not in the least invalidate the conclusions which we have deduced regarding the asthenic character of rheumatic fever, and its intimate alliance with those diseases which depend on a depressed condition of the blood.

Treatment.—This may be considered under five heads: 1st, Antiphlogistic; 2d, Specific; 3d, Narcotic; 4th, Eliminative; 5th, Tonic or Alterative.

In coming to a conclusion regarding the effects of remedies in shortening the duration of any disease, we have to ascertain, as the basis of our investigation, the natural duration of the malady. I have already pointed out that rheumatic fever has no fixed duration, but that it varies within certain limits—that is, from one to three weeks. The best observations which I have read on this subject will be found in an article by M. Dewalshe, on the expectant treatment of acute ex-

ticular rheumatism in the military hospital of Antwerp. He relates several cases of the disease, with the object of proving that this plan of treatment, introduced by M. Gouzée, the physician-in-chief to this establishment, is much more satisfactory in its results than the treatment by emetics, bleeding, opium, iodide of potassium, alkaline salts, &c. The plan of treatment adopted consisted of equable temperature, pure air, abundance of diluents, tepid baths, fomentations, good diet, bitter tonics, especially quinine.

The results of this treatment are—first, that the malady tends to terminate naturally in the *first or second week;* secondly, that the termination is brought about as safely, and as soon, as if active treatment had been employed; thirdly, that the *bruit de souffle* of the heart, frequently heard in the course of the malady, disappears spontaneously, in the majority of cases, as the recovery progresses; fourthly, that these *bruits* are not always and certainly the signs of endocarditis.

[Out of a number of patients in the Glasgow Infirmary, we may mention one where the wrists and hips were affected, pulse 92, loud bellows systolic murmur with the heart's action. He was ordered a dose of salts and senna, and in two or three days he was discharged. Another case very similar, where, after the pain and murmur had gone, was ordered two grains of metallic iron three times a day. In four other patients the disease had a duration of seven, ten, eleven, and fourteen days respectively, without any treatment having been adopted. From numerous observations, we may say that rheumatism often runs its course within a period of one or two weeks without any medicine; and, therefore, Dr. Bell thinks that blood-letting and *antiphlogistic treatment* does not shorten the duration of rheumatism, but, on the contrary, nearly doubles the natural period. With respect to *specific treatment* by colchicum, iodide of potassium, &c., Dr. Bell says we have not the slightest evidence that they exert any influence in shortening the duration of the disease. Colchicum may be useful when the urine contains urates in stout adult subjects, but it is very injurious in those of a weak constitution, especially the young and old. *Narcotics* have been very extensively used by some; they are sometimes highly advantageous in mitigating the intensity of the pain. The laudanum injection is the best form of administration, because digestion and secretion are least interfered with. The *eliminative* plan of treatment is the most fashionable of the present day.]

Those who advocate this practice, found it on the speculative opinions which have been reviewed at some length in this paper—namely, that the disease results from certain abnormal chemical changes taking place during the processes of assimilation. Remedies have therefore been selected, the chemical constitution of which renders them capable of entering into combination with the effete matters, and of reducing them into a proper condition for elimination through the excreting organs, especially the kidneys and skin. The most popular of these remedies are lemon juice and the alkaline salts. The speculative theories of the *modus operandi* of these medicines are very plausible and captivating;—when supported by the vaunted rapidity of the cure of the disease, they become almost irresistible. The able originators of these doctrines, and the mobile part of the profession which follow in their train, applaud themselves as the only scientific practitioners; all others they deem behind the age—mere ignorant empirics. From the remarks which I have ventured to make on the fanciful notions of these chemico-pathologists, the reader will perceive that I shall enjoy the unenviable position of being considered among the superannuated individuals. I have the presumption to think, however, that I can prove satisfactorily—1st, that eliminatives do not shorten the duration of the disease; 2d, that they often prove injurious; and, 3d, that the practice is unscientific.

1st. I contend that the eliminative treatment has neither proved more uniformly efficacious, nor more speedy than other modes.

(*a*) *Lemon Juice.*—Dr. O. Rees, who introduced this remedy, supposes that, by the excess of oxygen it contains, it promotes the conversion of *lithic* (?) acid into urea and carbonic acid, and consequently favours its excretion from the system, while the alkaline citrate which it contains assists to promote a cure. A careful examination of the cases related by Dr. Rees shows that, on the average, his cases were *twenty-five days* under treatment and were *forty days* under the disease. I have examined the result of the treatment in twenty-seven cases reported by

other advocates of this remedy, and I find that *twenty-eight days* is the average duration of the treatment, and many of the patients had laboured under the disease at least a week previous to admission. Need I point out the inferiority of the treatment, thus proved by the above results in the hands of its advocates, in comparison to the expectant method? Such is the rage for novelty, that though these facts were patent to all, yet the great mass of the profession commenced to dose their patients with the remedy; and though at the present moment it has been discarded by intelligent and leading physicians as at least uncertain in its action, yet many still continue to exhibit it, and consider their practice as the *ne plus ultra* of medical science.

(*b*) *Alkaline Salts.*—Dr. Fuller has used these largely, and states that it is impossible to speak too highly of their efficacy. On a careful examination of the six cases reported in his excellent work on Rheumatism, it will be found that these patients were on an average *twenty-one days* under the disease, and sixteen days under treatment.

Dr. Garrod has recently recommended large and frequent doses of bicarbonate of potash. He states that the result of his experience has been, that, in twenty males, the duration of the disease under treatment was between six and seven days, and the total duration between eleven and twelve days; and in thirty-one females, the disease under treatment averaged from seven to eight days, and the total duration between fifteen and sixteen days. He details three cases: The first, a girl aged ten years; the patient was under treatment five days, and under the disease eight. The second, a young man aged twenty years, under treatment eight days; total duration fifteen days. The third, a young woman aged eighteen years, total duration thirteen days; under treatment only nine days; this was her fifth attack, the former ones always lasted for a month or five weeks. On contrasting the results of the treatment in these cases with those placed under the expectant plan, we do not perceive any advantage on the side of the alkaline.

Tonic Treatment.—We have seen that rheumatic fever is intimately associated with those diseases depending on an altered condition of the blood; and we have also seen, that so far as chemistry can demonstrate, the altered condition peculiar to rheumatism consists in an increase of the fibrine, and a deficiency of the hæmatosin. Hæmatics are, therefore, the most appropriate remedies. By their influence we may reasonably expect to remove the faulty state of the blood.

I need scarcely remark that hæmatics are divided into two classes, one class containing substances natural to the blood;—they form a part of its constitution. They may, therefore, remain in it, and never be excreted. These remedies are useful when the blood is deficient in one or more of its constituents. They are, therefore, called restoratives. Now, in rheumatism we know that there is a diminution of the red globules. We also know that iron is the proper hæmatic to *restore* this deficiency.

"The other class," as Dr. Headland remarks, "are not natural constituents of the vital fluid, and cannot remain there. . . . They are of use when disease depends on the presence and working in the blood of some morbid material or agency, which material or action they tend to counteract or destroy." Now, in rheumatism we find the blood loaded with fibrine. Experience has taught us that the best vital antidotes which we have to remove this state of hyperinosis, are tonics and alkalies. These are vital catalytics, breaking up the fibrine, and after performing this function, often pass out of the body unchanged. Again, it seems highly probable, from the researches of Dr. Bœcker, that many of our tonics act in preventing those destructive changes which take place in the blood. He has shown that the effete products of the system diminish under the use of wine, sugar, and coffee. Simon properly remarks, "that our hopes of dealing successfully with humoral disorders depend altogether on the event of such investigations—investigations which never can be profitable, unless, like Dr. Bœcker's, they include an account of every individual excretion, and base themselves on a profound study of the natural metamorphoses of the blood."

The recent researches of M. Liebig have shown that there is a strong resemblance between the taurine of the bile and quinine. Dr. Headland suggests that quinine, and other bitter tonics, may act beneficially in taking the place of taurine.

Now we know that the biliary secretion either is deficient or deranged, not only in rheumatism, but also in fevers of all types. It is a matter of general observation, that quinine is often most beneficial in these affections. Dr. Headland has made some important remarks on this subject. I beg to refer my readers to the work itself. I would observe that I have often found tonics the best remedies for improving impaired or depraved secretions. These states frequently depend on vitiated conditions of the blood, resulting from improper primary assimilation. If we improve the digestive powers, we improve the blood, and consequently, supply the most necessary of all conditions for healthy secretions.

We often err very much in ascribing the disease of the blood to the impaired secretion or excretion, whilst, in fact, such impairment arises from the state of the blood—is the effect, not the cause. Often are the liver and kidneys most unjustly blamed, and most unmercifully treated, when they are not only perfectly innocent, but actually labouring as hard as possible to form their accustomed secretions from blood altered in its constitution.

In rheumatism we have an abnormal quantity of fibrine in the blood, and we need not be astonished to find the urine altered considerably in its constituents, especially those containing nitrogen. I need not digress on this subject any further, its importance to practical medicine being most obvious.

The benefit which followed the use of quinine, iron, wine, and other tonics, in the rheumatic complication of the fever of 1843, led me to reflect on the treatment of rheumatism by bark, as recommended by Dr. Haggenth and others. (The average duration of the causes so treated seems to have been about two weeks.) These circumstances, along with the asthenic condition of the system which exists in rheumatism, and the resemblance which its phenomena hold to those of other fevers and blood diseases, induce me to treat the disease by tonics and alteratives, selecting the remedies from those classes that seem most suitable to the peculiarities of each case. It is just the same in rheumatic as in other fevers, that whilst the general principles of treatment are the same, the details must vary in each case. As our object in fever is to guide the patient safely through the attack, and preserve his strength as much as possible, so in rheumatism our object should be similar, not to flatter ourselves that we shall be able to cut short the attack, but to endeavour to prevent organic lesions taking place, and support the patient's strength, in order to avoid the production of that morbid tendency to a return of the disease —usually designated by the term diathesis—the proper definition of which is *ignorance.*

I have no nostrum to propose—I have no favourite tonic to recommend—I am perfectly eclectic, being guided by the specialities of the case. I generally order some preparation of iron, combined with moderate quantities of liquor potassæ. When the liver is much deranged, I give a dose of calomel and rhubarb. When the urinary secretion is scanty, and its specific gravity not much increased, I prescribe colchicum. I frequently order quinine, either alone or combined with iron. Quassia suits remarkably well, and it has cheapness as a recommendation; when combined with the alkali, it quickly improves the digestive organs. Wine I deem the best and most efficacious tonic in weakly habits, or in those exposed to much privation. I never hesitate to give it freely to such patients, even when the joints are acutely affected. Fomentation is the only local application which I employ. An opiate at bedtime is strongly demanded; I generally order it in the form of laudanum enema.

The results of this simple plan of treatment have been most satisfactory. 1st. In no case has the patient been under treatment beyond a fortnight. In the majority the pains have been mitigated, if not subdued, in a much shorter period. 2nd. The period of convalescence is much shortened; the patients are much sooner able to resume their occupation, and seldom present the anæmic exhausted appearance exhibited by those who are submitted to more active plans of treatment. 3rd. The liability to cardiac disease is much less. In none of the cases admitted to the Infirmary did this complication occur when the patient had been put under the treatment on admission. Indeed, I am convinced that cardiac disease will be of very rare occurrence, if the tonic or hematic plan of treatment be adopted at an early period of the attack.—*Glasgow Med. Journal, Jan.* 1856, *p.* 399.

9.—DIAGNOSIS OF CANCER AND CANCROID GROWTHS.

By Dr. Morris H. Collis, Surgeon to the Meath Hospital.

Epithelioma commences on the skin as a dry and scabby wart, which falls off from time to time, and exposes on each occasion an increasingly wide surface of ulceration. At the junction of skin and mucous membrane it begins as a chap or fissure with indurated edges, and has a similar tendency to scab and ulcerate. When it originates on a mucous surface, it is either as a flat condylomatous wart, or as a deposit in the mucous follicles. Thus it is always as a local hypertrophy of the investing epithelium that it commences; and from first to last it frequently retains this strictly local character. Many of these growths upon the skin are nothing more than hard horny masses of dry epithelial cells, which occasionally fall off, and are slowly replaced. These may be either prominent or flat; we have frequent examples of them along the edge of the lip upon that part which is covered with coloured skin, external to the line of moist membrane; these are very harmless, and may last for many years unaltered in extent or depth, until accidental violence or inflammatory action excite them to spread. However, in the majority of epithelial growths, ulceration of the integument and deposit of epithelial cells in its substance takes place sooner or later. The skin splits into papillæ as in a wart, and the ever increasing deposit of cells upon the surfaces of these papillæ separates them more deeply and more widely apart. As these cells are wholly extravascular, and dependent on percolation for what fluid they draw from the economy, a process of disintegration is continually going on in them, and the surface of parts not subject to evaporation is soaked in the putrid remains of cells. How far this aids in the spread of the disease by exciting inflammatory action and ulceration of the sound structures it is hard to say. On mucous membranes this tendency to ulcerate is very marked; cauliflower growths from the uterus, for example, although prominent on the surface, and consisting of hypertrophies of the epithelial cells, have their seat on ulcerations which may destroy large portions of the organ. The ulcers, when exposed, present jagged irregular margins and surfaces; enlarged papillæ are visible during the early period of the disease when the surface is wiped free from discharge; at the edges they may be detected at any period. The neighbouring glands are affected irregularly; sometimes not at all; sometimes at an early stage. Upon the whole, the impression on my mind is, that the tendency to infect neighbouring glands is greatest when the disease has its seat on the mucous membrane; and least when it is on skin; but no positive rule can be laid down at present as to the local infection. General infection must be extremely rare, for those who oppose the classification into cancer and cancroid can bring very few satisfactory cases of general poisoning from genuine epithelioma. The disease often kills by local destruction and general waste, but without anything which can be called special or peculiar cachexia. When removed, even completely, it will sometimes return in an aggravated form and with rapidity; but this is quite exceptional; in the majority of cases in which the disease is removed completely, it either does not return, or does so only after a very long interval. All these facts show that there is much less tendency to general poisoning than in cancer, and justify us in classing it apart, especially as it is found to possess a different anatomical structure.

Another class of cancroid tumour, to which the general name of fibro-plastic is rather incorrectly given, includes several tumours of rare occurrence, and with slightly diversified peculiarities. The fibro-plastic shell is not the special element of any tumour of a cancroid nature, but the elements of these fibro-plastic growths resemble it more than any other cell. The fibro-plastic cell is found in all lymph which is undergoing the process of organization, and is consequently often found in tumours of any kind. The class of growths to which I now allude are called by Mr. Paget fibro-nucleated, recurrent fibroid, &c. The microscopic elements of which they are composed are small and very pale, they vary in diameter from the 1.1500 to 1.2200 of an inch. They contain a small nucleus and have a tendency to become elongated into imperfect fibres, arranged in a radiating manner and little organized. There is no juice obtained from a section of these tumours; and although they bleed freely when cut, it would seem to be rather from some want of power in their arteries to contract than from the number or size of the

vessels contained in them. If squeezed or torn up they break readily into little acini, which are individually remarkably tough and resistant. The minute fibro-cells appear to radiate from the point in each acinus by which it is attached to the rest. The tumour which is situated under the skin, and I believe always unconnected with it, is firm, moderately elastic, irregularly lobulated, moveable among the tissues and solitary; it does not affect the skin nor neighbouring glands, except by direct contract through the lymphatics, nor does it produce general cachexia independent of waste, as cancers do. Its strongest and most unaccountable peculiarity is its frequent and rapid recurrence after the most complete ablation, after even amputation at a considerable distance from the original seat. It invariably returns in from three to six months in the cicatrix, and requires repeated removal, which should therefore always be complete, but very sparing of the healthy tissues, and repeated early on the reappearance of the growth.

There are many other sub-varieties of both cancer and cancroid, but as we have not met with specimens of them during the present session, we must defer the consideration of them for the present. The main features of both classes of morbid growth, I have endeavoured to lay before you as fully as was consistent with brevity. I will now conclude these lectures with some remarks on the diagnosis of tumours, with a view to your guidance in the important points of operation and prognosis.

When a patient is presented to you with a tumour, you must note, first, certain circumstances relating to the individual; secondly, such properties of the tumour as manifest themselves to your senses; and thirdly, the effects of the growth upon the patient. Then comparing these with each other, and with the anatomical structure and known characters of the various growths, you will eliminate such as are incompatible with your examination, and thus arrive at what the tumour is by ascertaining what it is not. First, then, you will note such circumstances about the individual as the age, sex, history, &c. As to age—infancy and childhood are liable to acute cancer, enchondroma, and strumous swellings. Adult life is the period for all hypertrophies, such as fibrous and fatty tumours, for the cancroids and for the acute cancers in organs which are late in arriving at maturity, as the organs of generation. As the patient advances in age, slow-growing epithelioma and scirrhus become predominant. Cancer and cancroid form the vast majority of the tumours that are met with, if age be excluded from our consideration.

Sex exercises still greater influence on our diagnosis. When we glance at statistical tables, we find that cancers of the female breast and of the uterus surpass in numbers all other tumours in all situations put together. Of these, scirrhus of the breast and uterus form the bulk. We have a small proportion of acute cancer of the uterus, and smaller still of the breast. Women are also subject to innocent chronic mammary tumours of the breast; both sexes to epithelioma of the rectum and genitals; and men more than women to epithelioma of the lips and face generally. As regards temperament and appearance, thin, sallow, unhealthy-looking people are supposed to be more subject to cancer; but the lardaceous variety shows that the fattest people are not exempt from it. A melancholy, brooding disposition is often connected with cancer, as it is with any disease of perverted or deficient nutition; but, on the other hand, to whatever amount cheerfulness of temper may be an item in favour of recovery after operation, it is little protection against the primary development of disease. There are sufficiently numerous and remarkable cases on record of both cancer and cancroid occurring in successive generations, to prevent our denying the influence of their hereditary transmission; but, at the same time, these are few in comparison to the total number of cases. I have seen curious and marked instances of the repetition of encysted tumours, which have just as much weight for hereditary influence as the facts adduced in its favour in the case of cancer. Accidental violence is in much the same category; it may give an impetus to a latent tendency, and a locus to the deposit, but no more. It seems to me very doubtful whether the statement is correct, that the adenoid or chronic mammary tumour has its origin in effusions of blood.

We now come, secondly, to the properties of the tumours themselves. On this *point I have said* much that need not be repeated. The situation, size, weight,

shape, and mobility or fixedness of the tumour; its duration and rate of progress; the colour and alteration of the integuments; the appearance of the ulcer, if one exist, and the nature of the discharge; the solitary or multiple nature of the tumour; glandular irritation or infection in the neighbourhood or at a distance—must all be carefully examined into and weighed. Acute cancer is rapid, and attains often a very large size, is heavier than any non-cancerous growth, is seldom multiple, implicates in time all neighbouring structures, though it seldom poisons the glands when primary; and it almost always returns rapidly and extensively in the glandular and visceral organs after removal. Adenoid tumours are much smaller, very chronic, very moveable, perfectly harmless, and never affect the glands or the system, though they are sometimes multiple in the same breast or in both breasts. Scirrhus is small, chronic, of stony hardness, drawing in the skin, and all the fibrous tissues, into itself, and finally the muscles, and every other structure. Cancer in any shape does not ulcerate early. This distinguishes it from epithelioma, as the preceding symptoms do from adenoid, fatty, or fibrous tumours, and from the recurrent fibro-nucleated. Fatty tumours are easily known by their lightness, and largely lobulated surface, and scalloped edge. The most puzzling of all its physical characters is the cystic tumour of the breast, when combined with cancer, as it frequently is. Except in the plainest cases, it is impossible to diagnose by the hand and eye. The presence of cysts may be readily detected in many instances in which the cancerous deposit is small in amount, and veiled by the fluid contents of the cysts; and, on the other hand, the deposit of cancer may conceal the presence of cysts. Alterations of the integument, and the general symptoms, must guide us to the discovery of cancer; and, in the other case, if we are sure of the presence of cancer, we need not be so careful to diagnose the co-existence of cysts. I have seen simple cysts, the result of varices, mistaken for small fatty growths, and I really do not know any certain means of diagnosing them; but, fortunately, a mistake would be of no practical importance, as both tumours are harmless. To overlook cancer, in combination with cysts, would be more serious.

The last points to be considered in aid of our diagnosis are the effects of the growth upon the individual: these are pain, cachexia, wasting. Pain we have already spoken of. Cachexia is of value in the diagnosis of tumours, if it appear before they ulcerate, as it generally does in cancers. In other diseases, inclusive of the cancroid, it does not appear till the patient is worn and wasted by discharge and loss of blood, by deglutition or absorption of foul matters, and inhalation of noxious gases, the results of ulceration and decomposition. Wasting may be included in these remarks on cachexia.

With regard to operation. Encephaloid is more often removed with temporary, or even permanent success, than scirrhus, but success is very rare, and when it returns it is with extreme violence. In the young, you will give every chance by removing early and freely. A respite of years, if not a recovery, is in a few cases secured; and where a premature and horrible death is otherwise certain, the duty of endeavouring to secure this chance is plain. In the old, or even in the adult, you have less hopes of success; still, operation is justifiable and proper, when the powers of life are not depressed, and the tumour easy of complete removal, without such loss of integument as will delay recovery from the operation. Scirrhus, though often removed, is not often, if ever, permanently cured. When it is adherent to the deeper parts, when the lymphatic glands are the seat of deposit, when the glands of the skin are the seat of small disseminated beads of cancer, or when its interstices are infiltrated, as in the lardaceous form, it is worse than useless to operate: relapse is certain and rapid. When the growth is very chronic and very small, in a weak atrophied individual, the chances are, that an operation will convert into an active agent of destruction a comparatively harmless tumour, which, if let alone, would have lasted for years, with little local alteration, and little injury to the patient's life. In these very chronic cases, removal does no good, and may do much harm. In epithelioma, the general rule is to operate if you can remove all; relapse often occurs locally, but does not prevent a second or third removal. When the disease originates in mucous membrane, as in cancroid of the genitals or rectum, the tongue, or gums, you have little chance of permanent cure. In many of these cases, the addition of actual cautery to an complete

removal as possible is a valuable aid. The cicatrix of a burn is not a favourable nidus for epithelial growths, and by its great contractility, it seems to check the hypertrophic deposit in its neighbourhood. With regard to recurrent tumours, I have already said they must be removed as often as they appear, and with as little loss of healthy structure as is consistent with their complete enucleation.—*Dublin Hospital Gazette, Oct.* 15, 1855, *p.* 276.

10.—*On the Diagnosis of Cancer.* By Dr. Alexander Henry.—The question as to the utility of the microscope resolves itself into two points: first, as to the absolute value of the instrument in diagnosing a malignant tumour: secondly, as to the existence of a specific cancer-cell.

On the first point, we have several conflicting statements: first, that in some tumours, of an undoubtedly cancerous nature, cells are absent: secondly, that they have been found in tumours of a non-malignant character: thirdly, that the absence of cells from a hard tumour shows it to be non-malignant. On these statements I can only briefly remark; first, that in undoubtedly cancerous tumours, as shewn by their softness, it is possible that the cells may have undergone a process of disintegration, though I doubt whether cells could not be found in some portion of such tumours; secondly, that cystic sarcoma, to which I suppose reference is made when it is said that cells are found in non-malignant tumours, has a great tendency to degenerate; thirdly, that we must remember that apparently simple tumours are known sometimes to assume a malignant type, and therefore I scarcely see how it can be predicated of any one of them that it would not act in this way. After all, as I shall presently take occasion to point out more fully, the question of malignity is a relative one; and, as cells are most liable to assume that state of action to which I would apply the term malignant, I think that the existence of cells in a tumour affords grounds for regarding it as either malignant, or likely to become so; while the negative evidence is only valuable so far as it shews the most obvious conditions of malignity not to have yet been assumed.

As to the specific nature of the cancer-cell, I can only state here, that a consideration of the opinions of the microscopists to whom I have referred, together with the few observations I have been enabled to make personally, lead me to doubt whether there is a diagnostic cell. I should be guided more by finding cells in situations where they ought not to be; and if there is any cell more diagnostic of cancer than another, it is the large "parent-cell," with from three to five smaller ones within it. But the absence of such cells does not show that the disease is not cancer.—*Association Journal, Dec.* 15, 1855, p. 415.

11.—ON SPROUTING CAULIFLOWER CANCER.

By Samuel Solly, Esq., F.R.S., Surgeon to St. Thomas's Hospital.

This form of cancer has been called by some writers the soft cancer, in distinction to scirrhus, or hard cancer; by others, carcinoma medullare, or brain-like cancer; fungus hæmatoides, or bleeding fungus. It is that form of malignant disease which is most certain to return after an operation than any other; yet, notwithstanding this, it is often our duty to operate, not with the hope of saving life, but with the certainty of removing a loathsome mass, which makes life wretched. In many of these cases, the operation prolongs life, though not to the natural period of man. The rule which I have found, on the whole, the most safe and judicious, in regard to amputation of the breast for malignant disease, is this—to operate in all cases in which your advice is sought in the early stages of growth, before the surrounding glands are implicated, and the patient's health not so much impaired as to render the immediate effects of the operation dangerous;—to operate in cases like the present, where the growth of the disease is more rapid than the inroads upon the health of the suffer; where a loathsome mass goes on sprouting, *bleeding*, ulcerating, discharging, and sloughing, to the infinite disgust and distress *of its victim*; where there appears no prospect of death putting a speedy end to her

agony; and where the powers of life are so unequivocal that the operation does not threaten any immediate danger.

The cases in which I would not operate are those cases of scirrhous, stony cancer, which have been advancing slowly, silently, and painlessly for years, without much observation or anxiety on the part of the patient, and without any knowledge on the part of the friends; where a mass has gradually been formed, implicating not merely the whole mamma, but also the glands in the axilla, and sometimes the glands above the clavicle; attached to the pectoral muscle, and even to the intercostal muscles and ribs, before the surgeon sees it at all. In such instances, it is no charity to operate. The disease often remains dormant for years, or it extends inwardly, with little outward ulceration; the patient at last sinks gently into the grave, from the constitutional depression of the disease, and not from a local drain. I would not operate when the patient is old and feeble, when the immediate effect of the operation is doubtful.

When the patient, whose case I am about to relate, first came into the hospital, the disease had advanced so far into the axilla that the removal of the whole of it was out of the question, and her pallid countenance, worn features, and general appearance of debility seemed to preclude the idea of amputating such an enormous mass of active disease without extinguishing the vital flame. However, as her sojourn with us was prolonged, so her general health improved; but the disease advanced with rapid strides, till at last I could not in charity resist the desire to relieve her by one broad cut, believing, and the event has proved I was right, that I could do it without endangering her life. One of our old physicians here, I think it was Dr. Fordyce, said "thank God for opium!" May we not indeed say "thank God for chloroform" in such cases as this? The operation was performed without her knowledge, and she slept the same night better than she had done for months, and she has now a healthy wound instead of a festering mass of corruption.

[The subject of these clinical remarks was a married woman, aged 44, who had had eight children. The disease had commenced eight months after her last confinement, and eight months before her admission into hospital, by pain in the axilla and shoulder; in the course of time a swelling was discovered in the breast, which gradually increased and became more painful. The mamma, though enlarged, was soft and elastic, very like chronic abscess; it ulcerated, and then the bleeding fungous mass sprouted out and increased rapidly; the axillary glands were enlarged —nothing gave her any relief, and, under these circumstances, Mr. Solly thought it best to remove the entire diseased mass, not with the hope of curing her, but simply to relieve her from her agony and the profuse foul discharge.]

The progress of this case since the operation amply justifies its performance. I am now sorry that I did not operate on her sooner after her admission. I know that the disease is not eradicated, but I hope that it will take an inward course, which is far less distressing to its victim, and the liver seems to be the seat of it. The chloride of bromine has been recommended as a specific in cancer. I have only as yet tried it in two cases, but in neither have I seen any beneficial result. In some cases, I have thought that Dr. Arnott's apparatus has retarded the growth of this disease, and that in open cancer it has rendered the ulcer less offensive. On the whole, I have, however, been disappointed in its effect, and I seldom employ it now in any case.

In the performance of these operations, you must not attempt to save much skin with the idea of getting the wound to heal rapidly with the first intention. When the disease returns externally, it is generally on the skin which forms the edge of the cicatrix, looking as if we might have prevented it if we had taken a little more of the integument. You must also be very careful to dissect the pectoral muscle very cleanly; do not leave any cellular tissue over it. In making your first incision, remember that you make it below the mamma, and then the blood flows away from your knife, so that you see each tissue more distinctly as you expose it. Examine carefully the surface of the wound, in order to satisfy yourself that you have left no palpable piece behind. Also make a section of the tumour. This enables you to see if you have removed a circle of healthy cellular tissue beyond its margin.

These cases, in private practice, are the most disagreeable and unsatisfactory that you can have to do with. Of course, your conduct will have to be guided alone

by a strict sense of duty: you will neither be tempted to operate on account of the fee, nor tempted to refuse on account of the discredit which follows in consequence of a return of the disease. You will calmly consider what is on the whole best for your patient, swayed neither by her fears or those of her friends, nor by the prejudices of the practitioner in attendance, if such there be to contend with. It is most important that the patient herself should not know all your fears and all your doubts; it is most important that one or more judicious friends should know your real opinion. In these melancholy cases the husband is seldom the person who can be trusted. Fortunately for us, as no man living can say positively that the disease must return and must be fatal, we are justified in giving the sufferer the benefit of the doubt, particularly when hope itself may be the means of prolonging, if not of saving life.—*Lancet, January* 5th, 1856, *p.* 6.

12.—ON DR. LANDOLFI'S METHOD OF TREATING CANCER.

By Dr. Ch. Lasègue.

[Dr. Landolfi does not belong to the class of habitual blazoners of secret remedies; his method is not enveloped in any mystery; he is anxious to propagate his processes for the sake of humanity, and submits them to the investigations of men of science. He has courted a publicity which enemies, as well as friends, have admitted to be honourable, and therefore demands the attention he deserves.]

The principle on which the treatment is based consists in transforming a tumour of a malignant nature by conferring on it a character of benignity which admits of cure. This transformation is effected by cauterizations with an agent looked upon as specific,—the chloride of bromine,—combined or not with other substances which have already been very frequently tried, but have hitherto been employed separately. The internal treatment is merely auxiliary.

The formulas for the caustic are, except in a few cases, the following:—Equal parts of the chlorides of bromine, zinc, gold, and antimony, mixed with a sufficient quantity of flour to form a viscid paste.

The foregoing is the formula the author chiefly used in Italy; at Vienna he seems to have preferred a mixture of the same substances in other proportions:—

Chloride of bromine, 3 parts; chloride of zinc, 2 parts; chlorides of antimony and gold, of each one part; made into a thick paste with powdered liquorice root. This preparation should be made in an open place, on account of the fumes which are disengaged.

The essential element is the chloride of bromine, which, especially in the latter experiments, has often been employed alone without the addition of adjuvants:—Chloride of bromine, from 2½ to 4 drachms; powdered liquorice, as much as sufficient.

According to Dr. Landolfi's views, the chloride of zinc is indispensable in ulcerated cancers, in which it acts as a hemostatic. The chloride of gold is only rarely useful; it is particularly indicated in cases of encephaloid cancer, in which it exercises a special, if not a specific action. Cancers of the skin, epitheliomas, lupus, and small cystosarcomas, are treated with chloride of bromine mixed with basilicon in the proportion of one part to eight.

At first the author contented himself with spreading the paste on a cloth large enough to cover the diseased part, recommending that the thickness of the plaster should be proportioned to the depth to which it was intended its action should reach; he calculated that an epithem of a line in thickness should act to the depth of about half an inch. Subsequently he has had recourse to a more complicated method, and has adopted additional precautions, which we shall describe at length.

The healthy parts surrounding the heterologous tumour are covered with strips of cloth, from an inch and a half to two inches wide, smeared with a pomade composed of four parts of chloroform and thirty of lard, or what is better, of cold cream; the specific paste is afterwards spread to the required thickness on compresses, and gently applied to the part affected. At this period of the operation *the precautions* mentioned above, in reference to the pharmaceutic manipulation,

must be observed, and the patient must be kept near an open window, to avoid the injurious effects of the vapours of chlorine. The paste is not to be spread on a single compress of the size of the lesion, but on small portions of linen placed side by side, or even imbricated, so as to insure closer contact with the subjacent parts. The application of the paste ought not to extend to the healthy parts, its action being often propagated through a space of one or two lines.

When the dressing has been so far completed, it is to be covered with a pledget of lint, and a layer of compresses retained in situ with strips of diachylon.

To a tolerably sharp sensation of heat, pains often very intense soon succeed, and last from four to six hours, and even longer. A table-spoonful of the following mixture may be given every hour during the continuance of the pains:—Hoffman's anodyne liquor, laudanum, of each, 1 drachm; syrup of orange-peel, 2 ounces; distilled water, 3 ounces.

The paste, which was formerly kept on from ten to fifteen days, is now most frequently not allowed to remain on beyond twenty-four hours. On removing the dressing, a line of demarcation is almost always found separating the healthy from the morbidly altered parts; the tumour itself is in part whitish, in part reddish, or marbled with yellow and blue. The caustic is replaced with poultices of crumb of bread or lettuce leaves, or with compresses smeared with basilicon ointment, which are renewed every third hour until the scar is detached. The pain progressively diminishes, if it has not completely disappeared, in proportion as the mortification advances. The line of demarcation becomes daily more evident. About the fourth or fifth day the cauterized portion begins to rise, and from the eighth to the fifteenth day it becomes detached, or can be removed without pain by means of a forceps, leaving exposed a suppurating surface secreting pus of good quality, and covered with healthy granulations. If any points remain of less satisfactory appearance, or still presenting traces of the former alteration, a little of the caustic paste is to be again applied. The wound is otherwise dressed according to the rules observed in the treatment of simple ulcers, whether with linen spread with cerate, or with balsamic ointments, or, if the suppuration proceeds too slowly, with lint dipped in the following solution:—Chloride of bromine, from 20 to 30 drops; Goulard's extract, from one to two drachms; distilled water, 16 ounces.

In the majority of cases, healing takes place rapidly; cicatrization progresses from the circumference to the centre; no complications supervene, and the cicatrix resembles that left by a cutting instrument. The general state is very satisfactory, without Dr. Landolfi having made any change in the usual regimen of the patients: those cancerous individuals for whom a perfect cure is not expected experience remarkable relief. Notwithstanding the occasionally great degree of local pain, febrile reaction is not demonstrable.

All the observers who have watched the experiments agree in their statements of the facts we have just described, from whatever point of view they may have regarded them, and they come before us with the guarantee of the most respectable authorities.

As to internal treatment, we have said that the Neapolitan Professor considers it as an auxiliary to which it is not always necessary to have recourse. He admits that the modification produced by the chloride of bromine, employed externally, is not merely local, but that absorption of the specific by the skin, or by the wound, also takes place. It is as complementary to the treatment, and to prevent relapses, that he prescribes especially the internal preparation of the remedy, of which the following are the formulæ:—Chloride of bromine, 2 drops; powder of the seeds of water fennel, 23 grains; extract of hemlock, 12 grains: mix and divide into twenty pills, one to be taken daily for two months, and after that time two pills daily.

Chloride of bromine, 1½ drop; powder of the seeds of water fennel, 15 grains; extract of hemlock or aconite, 8 grains: mix and divide into ten pills, one to be taken morning and evening for six months.

Lastly, in cancerous affections of the uterus, when the cancers of the parts most easily accessible are too extensive to be cauterized, when the cancerous cachexy has reached the highest pitch, the following solution is employed as a local modifier:—Chloride of bromine, from 10 to 20 drops; distilled water, 16 ounces.

We have thus described most minutely the operative manipulation practised by Dr. Landolfi, and the pharmaceutic preparations to which he has recourse, thus opening the way to a testing of his system. It would be of little use to have described these processes without at the same time endeavouring, with the assistance of published observations, briefly to estimate their value.

Our object, as we have already stated, is not here to enter on a discussion, the data for which would be wanting; this is a task we leave to the Commission, whose ability and honour none will doubt. But mistrust is so legitimate when its object is a specific medication, the least semblance of assent is so dangerous, that it is our duty, before trying any of these methods, to make sure at least of the ground on which we stand.

The first question to be considered is that of the safety of the medication. The testimonies on this point agree so completely, that they command conviction; none of the observers, whatever may have been the amount of favour or disfavour with which they regarded the system, who have closely watched the trials made of it in Italy or Germany, have noted any serious bad consequence as resulting from it. The local inflammation attending the elimination of the disease does not exceed the limits assigned it by the operator; the general reaction is none, or is insignificant; all agree in stating that the patients were relieved; that they experienced no loss of appetite, of strength, or of sleep; that, on the contrary, they from the first acquired a certain alacrity. This first datum, which appears to us to be established beyond dispute, is sufficient to save the consciences of the experimenters; it perfectly legitimizes the steps taken by the administrators of the several hospitals, who have furnished the Professor with opportunities of propagating his mode of treatment.

The second question is more delicate. Were the tumours treated by Dr. Landolfi really of a cancerous nature? Were there not, to explain a supposed success, errors of diagnosis such as are too frequently made in putting forward a curative method? Never was there a period at which people were less disposed quietly to accept cancers diagnosed in haste, and to support a cure. If definitive opinions are not always uniform, all agree as to the necessity for close examination, and of not trusting to appearances. It seems to us more than probable that among the patients submitted to treatment, tumours and ulcerations of all kinds must have been confounded under too general a denomination; the descriptions are, by no means, all so explicit as to prevent us retaining some doubt as to the majority of the cases to which the most remarkable success is attributed. Dr. Landolfi has, like all inventors, found, along with sceptics, partisans prone to enthusiasm, and consequently inclined to magnify the merits of the discovery by exaggerating the severity of the disease; but, whatever be the narrow limits of our confidence, we willingly concur in the judicious observations of Dr. Calderini. If carefully instituted experiments do not show that we have as yet obtained a specific for cancer, those which have been made justify us in believing that the plan recommended by Dr. Landolfi fulfils valuable indications; that it cures, without inflicting danger on the patients, tumours and ulcerations, the treatment of which was hitherto dangerous or difficult; that it furnishes the surgeon with a modifier of great power, as well as of perfect safety; that it improves sores for which we were hitherto deficient, even in palliatives; finally, that its author deserves to be distinguished from the crowd of inventors, of whose discoveries nothing useful survives the day in which their panacea was proved to be neither specific nor infallible.

We have, in all frankness, expressed the opinion we felt ourselves bound to hold until we should receive more ample demonstration; but in such matters, an opinion is not worth one fact. Statistics would perhaps be still less decisive, and we have, therefore, thought it well, notwithstanding the length of this statement, to bring forward some cases. Those published have been reported by medical men who appear to be favourable to the system, but who rest on scientific testimony; they have been too recently observed to enable us to draw any legitimate conclusion as to the possibility of a relapse; accordingly, we have abstained from speaking of the absolute curative value of the treatment, convinced that it would be premature to sustain any conclusion of this kind, and to anticipate the future. M. Landolfi's plan of treatment can only be judged by its actual results.

Dr. De Brunn witnessed cures effected in the city of Gotha, whither Dr. Landolfi was summoned on the 13th November, 1853, to attend a princess of the reign-

ing family, and where he treated, in the space of two months, about 100 cancerous patients. Among the cases he reports, two especially deserves attention.

The first was that of a woman aged 59, affected with a tumour of the breast, examined by Meckel, of Berlin, and thus described by that microscopist:—The proper mass of the tumour consists of a reticulated structure, moderately supplied with blood-vessels in its fibrous tissue, in the midst of which meshes or alveoli are plainly observed filled with characteristic cancer cells.

The tumour, discovered about a year before, and at first lost in a general swelling of the breast, had become more and more isolated; it was hard to the touch, angular, had resisted the several means indicated, and had finally ulcerated, forming an ichorous excoriation, with thick and elevated edges. The paste was applied on the 14th of November. On the 25th the eschar was removed with the forceps without pain or hemorrhage; the sore, not being considered to be in a satisfactory state, was submitted to fresh applications of the caustic, which were continued until the 4th of December. On the 23rd of January, the sore, which had first been converted into a huge cavity, had cicatrized, with the exception of excoriations of the size of a bean.

The second case we shall quote is that of a woman from Berlin, aged 60, who had for twenty years laboured under a hard tumour situated at the outer side of the left breast. This tumour, which was during the last seven years in a state of ulceration, was very painful, had a bad smell, and gave rise to frequent hemorrhages; there was an almost constantly febrile condition, debility, and depression. At the time the treatment commenced (23rd November), the ulcer extended to the edge of the axilla; it was five inches in length and three in height. The edges were callous and strongly adherent; towards the posterior boundary was a group of knotty tumours discharging sanies.

M. Landolfi diagnosed a fungus hematodes; microscopic examination by Meckel proved it to be a medullary fungus. On the 3rd of December the bottom of the sore was clean and covered with recent granulations; the edges remained hard and knotty. The application of the chloride was repeated. On the 15th the granulations were well developed, the edges were inclined to close; a smooth and clean cicatrix was established. The patient's general state was improved, the improvement progressed rapidly, and on the 15th January the cure was complete, after the disease had lasted for twenty years.

At Vienna Dr. Landolfi likewise treated, from the beginning of June to the end of July, a great number of cancerous patients. The anonymous author who brought the results before the Society of Medicine quotes at greater or less length 38 cases which he observed himself, and which are thus analyzed:—Pseudoplasm of the breast, 17 females; of the nose, 4; cancers of the lips, 2; of other parts of the face, 5; cancerous infiltration of the axillary glands, of the ribs, and of the scapula, 3; extensive carcinoma of the inguinal glands, 1; encysted cancer, 1.—*Dub. Quarterly Journal, Nov.* 1855, p. 481.

18.—ON THE AVERAGE DURATION OF LIFE IN PATIENTS WITH SCIRRHOUS CANCER OF THE BREAST.

By James Paget, Esq., F.R.S., Assistant Surgeon to St. Bartholomew's Hospital.

[In a lecture delivered in 1852, at the Royal College of Surgeons, Mr. Paget made a statement, that the average duration of life in these cases was thirteen months longer when the disease was left to itself, than when the diseased breast was removed by operation. More extended experience from the averages of a greater number of cases show that this is not correct. We therefore insert a more nearly accurate statement of the average duration of life in both classes.]

Records which I have made or collected of 139 cases of scirrhous cancer of the breast, watched to their conclusions, or to their survivals beyond the average duration, give the following results:—

In 75 not submitted to operation, the average duration of life, after the patient's first observation of the disease, has been 48 months. In 64 submitted to operation, and surviving its immediate consequences, the corresponding average has been

little more than 52 months. The longest duration of life, in the former class, has been 216 months; in the latter class, 146; the shortest, in the former, was 7 months; in the latter 7¼.

The proportionate numbers of the deaths (with the deaths I have included in this table the numbers of those who are still living beyond the average period. The omission of them would have made no difference in relation to the questions concerning the influence of the removal of the cancerous breast), in each year, after the first observations of the disease, may be represented by the following table:—

	With Operation. Per Cent.	Without Operation. Per Cent.
In the first year, there died -	4·7	8
" second " -	6·25	22·6
" third " -	21·8	24·
" fourth " -	14·	9·37
" fifth " -	20·	7·3
" Sixth " -	11·	5·3
" seventh " -	9·37	9·37
" eighth " -	3·12	2·66
" years after the eighth -	9·37	12·

When the extremes of duration are so widely different as they are here shown to be, a perfectly reliable average cannot be obtained, unless the numbers of cases are, on both sides, larger than those supplied by my records. I could have easily made the numbers larger by including doubtful, or only probable, cases of cancer of the breast, but tables so made up seem worse than useless. I believe, therefore, that the results here stated are only near the truth, and that the collection of more cases will in some measure alter them.

Thus, it is nearly certain that the averages stated above are, on both sides, rather too low, for twenty of the patients (i. e. one-seventh of the whole number) are, or were, still living, after having survived the average time of duration with the disease. Moreover, as cases of the longest duration are the most likely to be lost sight of before their record is completed, it will generally happen that a collection of cases will include a disproportionately large number of those of short duration. Allowing, however, for these causes of reduction in the calculated average duration of life, there appears no reason to expect that any number of completed and unselected cases will prove an average duration of more than five years from the first observation of the disease.

The sources of error above referred to would, I think, especially reduce the estimate of the average duration of the cases in which no operation is performed; for unless cases are kept with an express intention of recording all that occur, without any selection whatever, there will be a tendency to omit a disproportionate number of those which are not made interesting, either by operations, or by some of those striking events which are most common in acute cases. Hence, the records will generally contain too few of the most chronic cases in which no operation has been performed. I have expressly avoided this error in my own note-books, by avoiding everything like a selection of cases for record; but I cannot be quite sure that the same rule has been observed in some of the records from which I have derived cases observed by others. I can find, however, no reason to believe that any full and accurate tables of cases will bring out, as a result, that patients, in whom cancer of the breast is left to pursue its course, live longer, on an average, than those from whom it is removed. Rather, I believe that, if care be taken in the discrimination of cases appropriate for the operation, and in the rejection of those that are unfit, there will appear a gradually increasing, though it may be always a small, advantage in favour of the cases in which the breast is removed. Probably it may be ascribed, in some measure, to such care, that the additional and continued cases, which I have tabulated in the last two years and a half, make the average duration in those operated on rather longer, and that in those not operated on, rather shorter than it appeared in 1853.

With regard to the rules that may be observed in the selection of the cases *most fit for operation*, I may refer to the published lecture; continued observations *having only confirmed* the statements made therein. I will only refer to one fact,

which the table printed above shows—namely, that the proportion of deaths, in the first two years of the disease, is much less in those who are operated on than in those who are left; amounting in the former to less than eleven per cent., in the latter to more than thirty per cent. Such a result, while it justifies the operation in the cases of acute cancers which are not attended with violent cachexia, may be fairly set against the mortality from the operation itself, which I still believe to be not less than ten per cent.—*Lancet, Jan.* 19, 1856, *p.* 62.

DISEASES AFFECTING THE NERVOUS SYSTEM.

14.—CASES ILLUSTRATING THE ETIOLOGY AND TREATMENT OF EPILEPSY.

By Dr. Robert Hunt.

[The author of this paper maintains that an abnormal excess of alkali in the blood directly predisposes the nervous system to disease, and not only this, but also that it probably causes various chemical changes in the blood, which result in the generation or retention of noxious matters in the system, which excite a tendency to spasm and convulsions.]

It is admitted, that when one of the stronger acids is taken into the system, it separates one or more of the weaker acids from their bases; and they in their turn separate those having weaker affinities than themselves. A series of decompositions and recombinations thus take place, each change involving the formation of compounds endowed with different properties from the one decomposed, and capable of exciting different and perhaps specific effects on the animal economy, which are made manifest by trains of morbid actions, corresponding with the changes taking place in the blood. We may, therefore, presume, from a parity of reasoning, that the presence in the blood of an undue quantity of an alkali, for which the acids in that fluid have a greater affinity than for the base with which they happen to be combined, will in like manner occasion a series of decompositions and recombinations, only in the opposite direction. It is also probable that, in this way, a great excess of alkali may prevent certain normal changes among the various ingredients in the blood, which are necessary for the elimination of some of the noxious matters generated by, or derived from, the natural disintegration of the tissues of the body—the cyanide of ammonia, urea, for example. In confirmation of this hypothesis, I will quote a passage from the introduction to the work of Dr. Prout, so often referred to. In treating of urea he says, "Alkalies scarcely affect urea at low temperatures, but, when assisted by heat, they rapidly convert it (together with water) into carbonate of ammonia." It is, therefore, a fair inference, that if alkalies decompose urea when formed, they will also prevent its elements combining so as to form it; an idea that is strengthened by the fact asserted by Dr. Prout, "that the quantity of urea in the urine (of persons in whose blood there is an undue amount of alkali) is usually deficient, while the quantity of soda and ammonia is in excess."

These are points of great interest in investigating the causes of epilepsy, because in whatever form the elements of urea, especially the noxious ingredient cyanogen, may enter, they will, if retained in the system, probably account for many of the symptoms from which epileptics suffer so much, if not for the epileptic convulsion itself; for it is more than probable that when cyanogen or a cyanide has accumulated to a certain extent, it will act on the brain and spinal cord as it does in the form of hydrocyanic acid, which, according to Dr. Pereira, "when given in large doses, but not sufficient to cause instant death, occasions convulsions;" and it would be likely, in smaller quantities, to produce those transient nervous symptoms, sudden faintness, momentary loss of consciousness, and those feelings of undefined terror and want of self-confidence so conspicuous in epileptics, especially as the period of a recurrence of fits approaches, and which, together with feelings of general nervous irritability, progressively increase up to the moment of the convulsions, and *usually subside* after the fit: as if the cause, whether it be a

materies morbi or not, having accumulated so as to produce an attack, is expended during the violent muscular and nervous action which constitutes a fit.

Having made these preliminary observations, I will proceed with the narration of the cases, the study of which suggested the preceding remarks and theory, and led to the adoption of a novel mode of treatment, which has proved, as far as it has been tried, singularly successful.

Case.—Mr. B., aged 18, passed the summer of 1851 in a malarious district. Towards the autumn, he perceived a manifest change gradually coming over him; he became languid and incapable of exertion, and his intellectual faculties so dull, that he was unable to prosecute his studies. In a short time headache supervened, and steadily increased in intensity. He then came to London for advice. I found him suffering from a severe pain over the left temple, which occurred daily about twelve o'clock, and continued for four hours; but the severity of the pain alone subsided, for he was never perfectly easy. It was a kind of remittent headache. The tongue was loaded, the skin and eyes dingy and half jaundiced, the urine scanty, and tinged with the colouring matter of bile, the bowels constipated, and the abdomen full, hard, and unyielding. I prescribed an emetic, and a brisk cathartic, which brought away a large quantity of vitiated bile, and afforded great relief. As soon as the liver and portal system were thoroughly unloaded by a repetition of the latter remedies, the constancy of the headache entirely ceased, and the pain assumed a regular intermittent type with intervals of perfect ease.

This was quickly cured by quinine. He was then sent into the country to recover his strength. Although the pain did not return, a general feeling of malaise remained, which he could not throw off. He continued in this uncomfortable condition for several weeks, when he was attacked while dancing, in a very singular manner. His deep manly voice suddenly changed into a squeaking puerile tone, his conversation was rather childish than irrational; at first the lady, with whom he was talking, thought this alteration in his voice and manner was assumed; but presently he began to stare about the room in an unmeaning way; he was then led to a chair, he was no sooner seated than his head dropped forward, and he became insensible. He recovered his consciousness in a few minutes, but was not at all aware of what had happened. I saw him on the following day, and witnessed a similar attack, in which, before he was insensible, he closely resembled a person in a state ot somnambulism.

Great difficulty was experienced in tracing this anomalous affection to its true cause; but, as it was evident from the abnormal state of the secretions that the general health was much disordered, I determined to apply my remedies to rectify it in correcting them. The alvine discharges were of a mixed character, portions being very dark, while other portions were of a pale clay colour; the urine was pale and slightly acid, the tongue a little furred, the pulse slow and feeble, the complexion tolerably clear. I prescribed a course of alteratives and mild aperients, combined with vegetable tonics and aromatics. The dark appearance of the stools was soon removed, but there was still a deficiency of bile, and the urine became at the same time paler and almost neutral, but not positively alkaline. During this treatment all the nervous symptoms steadily increased, and my patient often dropped senseless on the ground, sometimes without warning, and remained a long time insensible. Vegetable and mineral tonics were now given: but under their use, the disease still growing worse, a consultation was held, first with Sir Henry Holland, and subsequently with Dr. Marshall Hall, both of whom recommended me to return to the general treatment I had first adopted. The disease, however, rapidly increased in violence. The delirium sometimes continued several days without intermission, excepting during the fits of insensibility, which were now accompanied by convulsions, affecting both sides of the body alike. The alvine discharges still showed a marked deficiency of bile; the complexion had become unnaturally pale and clear, resembling the appearance of a person who had long resided in a tropical climate. The urine was limpid, of a low specific gravity, almost neutral, and contained little else than a large quantity of the chloride of sodium, with scarcely a trace of urea.

I then prescribed the nitro-muriatic acid bath, in which he was to remain for *twenty minutes* every night. I also gave him 20 minims of the dilute nitro-*muriatic acid* twice a-day before meals, and a compound rhubarb pill every night.

I advised also that a moderate quantity of subacid fruits should be added to his diet, and lemon-juice or vinegar to be freely used in the preparation of his food. The good effect of this treatment was immediately perceptible.

In the course of a few days my patient expressed himself as feeling better, and as having more nervous energy. In the course of ten days, the alvine discharges were evidently more tinged with bile, and the urine more acid. At the expiration of another fortnight, many of the nervous symptoms abated; and at the end of six weeks there was a manifest decline in the delirium, which then rarely continued more than a few minutes, and soon afterwards ceased altogether. The next improvement was a gradual diminution in the violence and duration of the fits, and of the insensibility following them; and the fits themselves ceased to return about ten weeks after the commencement of the acid treatment. In order to confirm the cure, the baths were used occasionally for several months, and were not entirely laid aside until the lithate of ammonia was freely deposited in the urine, which I consider a sure indication of a complete change having taken place in the system. Since that time, now four years ago, this gentleman has remained in perfect health.

I am well aware how difficult and dangerous it is to determine how much of such a cure is to be attributed to the treatment employed; yet the effect of the acid remedies was so immediate and decided, that it is impossible not to believe that they had some share in bringing it about; especially when we remember how successfully a combination of acids and purgatives was administered, and how greatly the epilepsy was aggravated by the saline and alkaline remedies in the first case. The case of this gentleman is also peculiarly valuable, for we rarely meet with one, in which the regular gradation of changes in the symptoms can be so clearly traced to corresponding changes taking place in the blood; for there can be no doubt that the primary symptoms—the loss of energy, depression of the vital powers, and the dulness of the intellectual faculties, were caused by the contamination of the blood from the inhalation of malaria; and that to this cause may also be attributed the derangement of the functions of the liver. The complete relief of the constant headache, by the removal of the accumulated bile, proved that at least the constancy of the pain was caused by the hepatic disorder. The accumulated bile having been removed, the malarious poison was enabled to exert its specific influence on the nervous system; the headache consequently assumed a regular intermittent type, until checked by the anti-periodic properties of quinine. The connexion between the subsequent nervous symptoms and state of the blood, is perhaps not so clear; yet the relation between them is sufficiently well marked to warrant the presumption that they were in some way connected, as cause and effect.

The absence of bile in the alvine discharges, showed that some of the ingredients of that secretion were retained in the system, whilst the analysis proved the presence of an undue quantity of soda in the urine, consequently in the blood from whence it was derived; and this, according to Dr. Prout, is likely to have acted on the brain in a very deleterious manner, and to have produced the delirium, as it did in the case he refers to. And according to the theory suggested in the beginning of this paper, the undue quantity of soda probably prevented the extrication of urea, which would account for many of the nervous symptoms, and not unlikely for the fit itself.

This is, at least, a plausible explanation of the various morbid phenomena manifested in the progress of this instructive case, and its correctness is supported by the fact, that the delirium and other nervous symptoms commenced with the imperfect secretion of bile and the retention of its ingredients, and that they increased in proportion as those ingredients accumulated; and progressively declined from the day the liver began to resume its functions, and the abnormal state of the blood was corrected by the acid treatment.

[The acid treatment being so remarkably beneficial in this last case, Dr. Hunt was induced to try it in one which had long been considered hopeless, and which threatened ultimately to destroy both mind and body. She was an unmarried lady. The fits commenced at the age of 35, and had recurred at intervals of three or four weeks for nine or ten years; her memory had been much impaired, and she had lost the firmness of nerve and power of reasoning for which she had previously been remarkable.]

I had an opportunity of witnessing an attack in 1852. I was awoke about four o'clock in the morning by a scream, and when I reached the lady's room, I found her in a violent fit; the convulsions lasted several minutes, and were followed by a deep comatose sleep. At this time her general health appeared good; the bowels regular; the discharges rather paler than natural; the urine of a pale citron colour, with opalescent crystals on its surface; the specific gravity 1·006; it was very slightly acid; and there was a cloud of the phosphates deposited on boiling. I regret that I was unable to have it carefully analyzed. The catamenia were regular, and normal in quantity and quality. The tongue was clean; the pulse feeble and easily accelerated. The skin was tinged with a bluish-grey colour, the consequence of her having taken large doses of nitrate of silver for several months. There was a general want of nervous power, which obliged her to have recourse to sal volatile or wine three or four times a-day, to enable her to perform her usual domestic duties.

The acid treatment was commenced in the summer of 1852; the nitro-muriatic acid bath was ordered to be used every night, and 20 minims of the dilute acid taken twice a-day in a glass of water, and an occasional dose of pills composed of equal parts of extractum colocynth. com. et pil. galbani comp. I directed that her diet should consist of a moderate quantity of animal food, blended with green vegetables and subacid fruits, and that she should drink half-a-pint of cider with her luncheon and dinner.

The beneficial effects of this treatment were as quickly made evident as in the last case; first, by an improved tone of the nervous system, which enabled her, in the course of a month, to dispense with the stimulants she had been reluctantly obliged to take. The next perceptible improvement was a diminution of those sensations she called "the lesser faintnesses," and there was no return of the fits for thirteen weeks after the treatment had been commenced. At the expiration of that period she unfortunately received a severe shock from being present at the sudden death of a friend, and she was also exposed to great fatigue and anxiety, which interrupted the use of the bath and other remedies. On the 3rd of September, a few weeks after they were discontinued, she had a fit, but it was not so violent as before, neither was it followed by the usual sleep; and there was another fit on the 8th, which left great weakness. The bath, &c., were immediately resumed, and soon produced an evident improvement, both in the patient's strength and the gradual removal of those feelings of undefined dread which had occasioned her so much distress. Unfortunately, at the expiration of two months, the serious illness of a relative occasioned great anxiety, and obliged her to overtax her strength, and to discontinue her remedies. She immediately began to decline, and on the 8th of December, four weeks after the treatment had been discontinued, she had three fits in quick succession. The bath, &c., were again resumed, and steadily employed for six months, excepting when the acid irritated the skin. On the 28th of February, 1853, she suddenly became weak, but not insensible; nor was the weakness preceded by the usual nervous symptoms. On the 22nd of March there was a similar attack, but still slighter than the former: it only amounted to an uncomfortable sensation, which quickly subsided; from that time to this, now more than three years, there has not been the least indication of a relapse, and, what is not only satisfactory, but important in regard to the power of the acids to restore tone to the nervous system, she now remembers passing events nearly as well as before her illness; but much of what had occurred during it, even what at the time was of a painful nature, as well as a large portion of her previously acquired knowledge, have escaped altogether; yet she feels assured that the latter is gradually returning, and her medical attendant is of opinion, judging from the evident improvement that is still taking place, that her memory will be ultimately restored.

To confirm the cure, I advised the occasional use of the bath for a fortnight at a time, whenever the colour of the secretions from the bowels should indicate a deficiency of bile, or the urine be abnormally pale for many days together.

I regret that I cannot give a more minute description of the various symptoms which manifested themselves in the progress of the cure, as my patient lived at a *great distance* from London; but I was informed that the acid bath produced great *irritation* on the skin, and slight sloughs in the early part of the treatment; and

that, in the course of a few months, the urine occasionally deposited a red sediment, which had not been observed for many years before the first occurrence of the fits.

From the want of a minute and accurate analysis of the urine, it is impossible to determine whether the system was in exactly the same state as in the two former instances; yet, as well as I could judge from the general symptoms, there was evidently a great similarity between them, and I think no doubt can be entertained that the relief was owing to the treatment adopted; for, although the relapses occasioned a temporary distrust, they clearly prove its efficacy: 1st, from the fits having recurred on two occasions when the bath had been discontinued for a few weeks; 2nd, from the improvement which almost immediately took place each time on its resumption.

The next case is an equally important one, as it also shows the general power of this novel application of acid remedies in restoring strength to, and allaying the morbid sensibility of, the nervous system, as well as in curing epilepsy.

Case.—Mr.——, aged 22, was first attacked with epilepsy at the age of 13. His illness was attributed to an insufficient diet, and to the many privations and hardships he had been exposed to at a public school. The fits at first returned irregularly, but for several years they have recurred about every three or four weeks; he, however, has seldom passed many days without experiencing minor attacks, similar to those nervous sensations described in the last case as faintness. The disease gradually impaired the tone of the nervous system, and at length rendered it so sensitive that any sudden sound, such as a loud ring of a bell, immediately produced a severe shock; and, if the period for a return of the fits happened to be near, it almost invariably brought one on. The disease has also seriously injured the intellectual faculties, so as to render him incapable of study, or of any pursuit requiring steady application, or continuous thinking. Although not insane, he became irritable and violent, and so completely lost all control over himself, that he was obliged to be separated from his family, and placed under the superintendence of a medical man.

I first saw him in January, 1854. His general health then appeared good; his complexion was pale and transparent; his appetite voracious. He suffered from indigestion, which, however, arose more from the quantity of food he ate then from any disorder or inherent weakness in, the stomach itself, and he was always benefited by moderate purging. The tongue was perfectly clean, and he was free from pain or confusion in his head. The pulse was soft and compressible. He gave me a clear account of his symptoms and habits; but I was afterwards informed that it was rather a cunning description, for the purpose of concealing his propensities, than a true statement. An opportunity was given me of witnessing the effect of a sudden sound on him. The house-bell was rung loudly. He immediately sprang from his chair in great distress, his breathing was suspended, his heart fluttered, and his pulse beat rapidly, and he did not recover from the shock for several minutes. The urine was pale, and passed in considerable quantity. It was slightly acid; the specific gravity, 1·0247; dried residue, 5·81 per cent.; ash in residue, 1·80; chloride of sodium in the ash, 1·005, and only a trace of urea.

The acid treatment was immediately commenced, but, through some misunderstanding, it was imperfectly carried out. He simply sponged himself with a solution of the nitro-muriatic acid once daily for a few minutes. As this gentleman did not live in London, I did not see him after the first interview for several months; I then ascertained the mistake, from finding the treatment had failed to produce any sensible effect either on the skin or the disease.

It was not until August, 1854, that he began to use the remedies properly, and to take the acid internally. As circumstances prevented the employment of the bath, he merely sponged the whole body twice a-day, for twenty minutes at each time. His bowels were kept freely moved by the compound extract of colocynth, and he was made to be more moderate in his diet. In the course of a month, the beneficial effect of the treatment was made evident by a gradual diminution of the morbid sensibility of the nervous system, which enabled him to bear the ringing of the bell, and other sounds, without experiencing any unpleasant feeling. The next improvement was the gradual cessation of the minor nervous attacks, a prolongation of the *interval between the fits*, and a diminution in the violence of the

convulsions, until they entirely ceased. The last fit occurred on the 23rd of March, 1855, just six months after the acids were properly employed. This gentleman has since remained well, and is so much improved in temper, and has acquired such a control over himself as to permit his returning to his friends, and to be employed in superintending a small farm.

Being desirous of ascertaining what alteration had taken place in his urine since his recovery, I submitted a specimen, which was passed before breakfast, to Mr. Medlock, for examination, and the following is his report:—

Specific gravity	1·026
Per-centage of solid residue	5·05

The urine is strongly acid to test paper, and, on standing, deposited a considerable quantity of pure uric acid; in other respects it appears to be of a healthy character, urea and phosphates being present in the usual proportions.

Case.—M. C., aged 11, was brought to me in September, 1853. He had been afflicted with epilepsy about two years. The first fit occurred at school, where he had been insufficiently nourished. It was attributed to a fright occasioned by a trick played on him by his schoolfellows. He was naturally quick and intelligent, but a sensitive child. Some time before the first fit he appeared dull, and unable to learn his lessons as well or as easily as he had been accustomed to do, and also to be unusually fearful. When I saw him he was pale and delicate, and his complexion presented the same transparency as in the preceding cases. He was very nervous and fearful, and showed evident terror at the idea of being left alone. His tongue was clean, his pulse quick and small, his eyes of a pearly whiteness. The bowels rather confined. The discharges were described as being pale, and the urine also pale, as well as clear. I prescribed the acid bath, and the internal use of the nitro-muriatic acid, and a sufficient quantity of an electuary, composed of equal quantities of sulphur, bitartrate of potash, and syrup of ginger, to regulate the bowels.

The child was brought to me again at the end of a month, when I learnt that he had a fit a few days after his first visit, but none afterwards. He appeared stronger, and much less nervous and timid; and he allowed himself to be left alone for a few minutes without hesitation. I recommended a steady use of the same treatment, and that he should spend as much time as possible in out-door exercise, and that lessons of every kind should be strictly avoided. I did not see this patient again, but I was informed that the treatment had been so successful, and had apparently effected so complete a cure, that his parents thought they might safely send him to school after the Christmas vacation. They did so, and he appeared to bear his work pretty well for a few weeks; he then began to feel confused, and soon afterwards he had a violent fit, in which he died.

This case, however, showed the power of these remedies to correct the state of the system on which the epilepsy depended; not only by the cessation of the fits, but by the removal of that morbid nervous terror from which epileptics so frequently suffer; and I think we may assume, judging from the other cases, that if the treatment had been continued longer, and more time had been allowed for the brain to recover strength before the intellectual faculties were again exerted, the epilepsy would have been permanently cured, and the child's life preserved.

Case.—Miss L., aged 56, had suffered for six years from dizziness, which generally came on while walking out immediately after breakfast, sometimes so suddenly that there was neither time to return to the house, nor to sit down, before she would fall to the ground insensible, and on three occasions she remained unconscious for an hour and a quarter. I saw her in July, 1853. She was then slightly jaundiced; the tongue foul; the pulse feeble; the evacuations pale, sometimes nearly white; the urine pale and clear. I prescribed a course of saline aperients, with an occasional dose of pil. hydrarg. and pil. rhei comp. Under this treatment she became much worse, especially as to the dizziness and faintings. She consequently again came to town in September, 1853, with a friend, from whose description I found that the faintness and other nervous symptoms, which I had supposed arose from bile, were epileptic. The urine was then examined, *and was found to* contain an inordinate quantity of the chloride of sodium, (which, *in the specimen* analyzed, may have been partly derived from the soda given in

her medicine,) and less than a normal amount of urea, and there was a considerable quantity of the phosphates; specific gravity, 1·020.

I prescribed the nitro-muriatic acid internally, and a dose of the compound rhubarb pill every other night. This plan was persisted in for six weeks; at the expiration of that time she appeared to have been restored to the same state as she was in before I first saw her. I then advised the acid sponging twice a day, and the drinking of strong lemonade, with a glass of sherry in it, both for luncheon and dinner, in addition to the internal use of the nitro-muriatic acid. The effect of this treatment was immediate and striking. She soon perceived a manifest improvement in her general feelings, as if more nervous vigour had been given her. The attacks of dizziness were evidently lessened. At the expiration of two months she wrote me that the dizziness had subsided altogether, and that she had not had a fit since she commenced the sponging. She further wrote, that she could not describe the improved state of her nerves better than by saying she had more the feelings of health than she had experienced for several years. She continued to use the acids for several months without interruption, and up to this time, February, 1856, she has remained perfectly well, although she has been exposed to severe affliction since her recovery.

[In another case of a young lady, aged 13, who had been subject to epileptic fits at intervals of three or four weeks, for two years, there was an unusually large quantity of phosphates and a deficiency of urea in the urine. The same acid treatment, externally and internally, with an occasional purgative, was here adopted with equal success; all nervous symptoms soon subsided, the phosphates disappeared, the urine became normal, and the patient appeared quite well.]

Although the following cannot be considered a case of true epilepsy, but an example of the hysterical form of that disease, yet it offers so many points of interest connected with the subject of these papers, particularly in regard to the injurious influence of alkalies and beneficial effect of acids on this class of nervous diseases, that I am tempted to describe it.

Case.—Mrs. ——, aged 30, a stout person, married, but has never been pregnant, consulted me during the latter part of my attendance on Case 2. This lady has been liable to sudden attacks of insensibility for several years; they are generally preceded by dimness of sight, confusion of ideas, and other symptoms of a disordered state of the nervous system. These symptoms seldom last more than a few seconds before she becomes unconscious, in which state she sometimes continues for twenty minutes. Although strong and robust in appearance, she is easily fatigued. The catamenia are regular, but the discharge is of a very dark colour; the bowels are constipated; the urine is pale, the specific gravity 1·006; it is slightly alkaline, and contains a considerable quantity of the phosphates and little urea. She complains of a distressing irritation in the uterus, to cure which, lunar caustic and other local remedies have been applied for several successive months without affording relief. The appetite and digestion are good, but she has an intense craving for sour fruit and acids of every kind, which have been forbidden for the last two years, and during that time her diet has been restricted to animal food, bread, and porter, to which she has strictly adhered.

Under these circumstances, I considered this case afforded an excellent opportunity of testing the virtue of the acid treatment, and of ascertaining whether the cure of Case 2 was really owing to that treatment, or was an accidental occurrence. The acid bath, and the nitro-muriatic acid internally, were therefore prescribed; and I also directed my patient to drink half a pint of cider with luncheon and dinner, and to eat freely of fruits and vegetables, which were enjoyed with a zest only known to those who, like sailors, have been long deprived of such necessary articles of diet. The effect of this treatment was really magical. In the course of ten days she felt as if new life had been given her; all the nervous symptoms rapidly subsided, and though the fits of insensibility were not overcome for several months, yet they so steadily declined that there could be no doubt that their subsidence was owing to the treatment adopted. She had a slight relapse during the following spring, which immediately yielded to similar remedies.

Remarks.—Notwithstanding the preceding cases are few in number, and although the urine was not examined so minutely in some of them as it should have been, yet, while these patients *continued to* suffer from epilepsy, the analyses showed it

to possess in all such a uniform and peculiar character, viz. low specific gravity, an unusually large proportion of mineral matters, especially of the chloride of sodium, and an exceedingly small quantity of urea and other organic matters, that it is not unreasonable to presume there must have been some connexion between the state of the blood, as indicated by the quality of the urine, and the disease in question, as cause and effect; and this presumption is supported by the fact, that all the nervous symptoms, as well as epilepsy itself, gradually declined in every case in proportion as the acid treatment corrected the abnormal state of the urine; and it is still further supported by my having ascertained that the urine had lost those peculiar qualities, in those cases in which it was examined, six months after the disease was cured.

Whether the excess of soda causes absorption of the nerve-tissue in the way suggested, or whether it interferes with the nutrition of that tissue, post-mortem examinations show that in a large proportion of cases, the brains of epileptics are evidently diminished in volume; in some, the entire brain, while in others, only portions have appeared to have been atrophied; and in these instances, the spaces thus formed have been filled with fluid.

In support of Dr. Prout's opinion, that persons whose urine contains an abnormal quantity of soda or potash, are especially liable to spasmodic diseases, it may be stated, that numerous instances have occurred to me, in which convulsions, spasmodic asthma, laryngismus stridulus, have succeeded the suppression of eruptions, such as crusta lactea of children, eczema of the lower extremities of aged persons, the discharges from which are alkaline; and in many instances the cutaneous affection and those spasmodic diseases have alternated.

The connexion between the latter diseases and the abnormally alkaline state of the system so produced, is shown by the urine being normally acid while the skin is discharging, and by its becoming alkaline as soon as the discharge is suppressed; and it may be repeated, that the susceptibility of the nervous system is so great while the urine is in the latter state, that the most trivial exciting cause is often sufficient to provoke a fit or spasm, as the case may be, and that this extreme susceptibility ceases as soon as the urine becomes acid on the reappearance of the cutaneous discharge.

Lastly.—However true the theory propounded in these papers may be, of a certain condition of the system producing a liability to epilepsy and other convulsive diseases (the difference between them arising perhaps from some modification of the exciting cause), it is admitted that epilepsy often arises from irritation of the brain, from permanent physical causes, such as spiculæ of bone growing from the inner table of the skull, from tumours in the brain, &c. But it may be asked how does it happen that the irritation being constant, the fits are not also constant? whereas it is well known that fits arising from such causes only appear at intervals. The inference that this question leads to is, that there must be something, in addition to the permanent physical source of irritation, to account for the actual convulsion. We must, therefore, look for an explanation to some change taking place in the system, similar perhaps to the one I have suggested, in which the generation or retention of urea, or some other poison, occurs; which, when it has accumulated to a certain extent, is likely to produce so great a disposition to convulsion, that the mechanical irritation, which under ordinary circumstances is not sufficient to excite a fit, may then provoke an attack, in the same way as a spasm of the glottis may be readily induced, when the nervous system has been rendered abnormally sensitive by the blood being surcharged with alkali by the suppression of the alkaline cutaneous discharge or other causes.

These papers have so greatly exceeded the length I anticipated, that they must now be brought to a conclusion, although I could have wished to have offered a few words on the various modes by which the abnormal state of the system I have attempted to describe can be produced, and on the modifications the acid treatment requires in different individuals; but I must be satisfied with offering a caution to those who are inexperienced in the use of the acid bath: that it is a remedy of great power, and that it occasionally excites considerable disturbance of the system, but which can always be prevented by moderate care and attention.—*Med. Times and Gazette, Feb.* 9, *p.* 133; *March* 1, *p.* 206; *and March* 22, 1856, *p.* 279.

15.—ON THE TREATMENT OF AFFECTIONS OF THE NERVOUS SYSTEM WITH OXIDE OF ZINC.

By Dr. W. Marcet, Assistant Physician to Westminster Hospital.

[The following cases show the powerful effects of oxide of zinc as a tonic and antispasmodic in diseases where the nervous system appears chiefly affected:]

Case 1.—Henry Jones, aged 35 years, a pork butcher, admitted as an out-patient on the 26th of May. Usually enjoys good health, but has a nervous temperament. About eight years ago he was suddenly seized with epileptic fits and occasional hallucinations, each fit lasting an hour, and returning every month. He cannot ascribe them to anything but working in low damp cellars, where he minces meat, occasionally in a putrid state. The fits gradually increased in number, and after two or three months occurred as often as five or six times daily, each attack lasting about three minutes. In this state he was admitted as an out-patient at the Westminster Hospital. As to the nature of these fits, the patient feels when they occur as if falling asleep, and becomes quite unconscious. His brother describes the fits as being attended with congestion of the face, slight foaming at the mouth, and spasmodic contractions of the arms and legs, which symptoms suffice to show the nature of the disease. It is remarkable that the patient was much troubled with headache before being subject to these fits; but since he has fallen ill, the headache has quite disappeared. He always sleeps well, but has occasionally fits while in bed. There is no pain in the spinal cord, no numbness in the extremities; noises sometimes heard in the ears, and a weak sight; is very subject to vertigo. Appetite always very good; bowels regular; digestion healthy; seldom or never feels sick. Passes water quite freely; it is in general of a pale colour. The diet he takes is good; he was in the habit of drinking from three pints to two quarts of beer daily, but now he never takes more than one pint.

July 6th. Since admission on the 26th of May, he has been treated with oxide of zinc, beginning with one grain twice a day. On May 30th, a blister was applied behind the neck. On the 27th and 28th of June, the treatment was interrupted, when he was ordered to take twice a day two pills, each containing one grain and a half of assafœtida and as much aloes; and on the 29th, seven grains of oxide of zinc were prescribed. The fits have now (6th July) gradually diminished in number and duration; none have occurred for the last five days. He feels much less giddy, enjoys a greater flow of spirits, and has returned to work as a fishmonger.

[The fits still continued to recur, but at longer intervals. He remained under treatment for several months. The dose of the oxide of zinc was gradually increased to eighteen grains twice a day, and the fits, though occasional, became very slight.]

Case 2.—Julia Harris, aged 11, was admitted on the 24th of July, 1855. Three weeks before admission, she lost the use of the right arm and leg; the arm became seized with involuntary motions; and when, on admission, I kept her hand forcibly at rest, she could hardly grasp my fingers. I employed this method at every visit, to test the degree of the paralysis. The right leg has now become nearly quite powerless, and she can hardly walk. Complains of great headache; speech very difficult and indistinct. No affection of the sight; no noises perceived in the ears. Appetite very bad from the beginning. The only cause for the appearance of the above symptoms was rheumatic fever, which she suffered from for three weeks just before the chorea appeared. Never noticed any worms in excrements.

On the 25th, she began taking one grain of oxide of zinc morning and evening; but, on the 28th, no improvement being perceptible, the pills were omitted, and she was ordered one grain of blue pill, and one-fifth of a grain of opium, twice a day. On the 1st of August, the morbid symptoms had rather increased; the oxide of zinc was then resumed instead of the mercury pills, which she continued to take regularly. From August 4th till September 5th, one grain of oxide of zinc was taken twice daily. On the 4th of August and 2nd of September, a small blister was also applied behind the neck, for the purpose of diminishing the headache. She took half an ounce of castor oil on the 5th of September, on which day the dose of oxide of zinc was increased to two grains. On the 12th, castor oil was again prescribed, to relieve the bowels. The 15th, she was directed to take three grains of the oxide of zinc twice daily, and two drachms of cod-liver oil, three times a day,

besides the pills. (The patient only took two drachms of cod-liver oil once a day, by mistake, until the 21st.) I may observe, that the patient had at this period nearly quite recovered. The chorea was hardly if at all perceptible; she could walk quite straight, and without difficulty; and the power of the hand was gradually increasing; so that it is impossible to attribute the recovery in this case to the cod-liver oil: still it appeared to hasten the cure, and may be useful in cases similar to this one, as an addition to the oxide of zinc. On the 18th, the dose of the oxide of zinc was increased to four grains, which she took twice a day, besides the cod-liver oil, until the 21st. She was now quite well; the pills were omitted, and the cod-liver oil continued until the 13th of October, as she had considerably fallen in flesh. On this day she was dismissed, cured.

Case 4.—Hannah Watts, aged 14, admitted on the 3rd of August. Has a healthy constitution, but suffers since the 27th of July from epileptic fits. During the attack, she is convulsed, and screams; becomes red in the face; grinds her teeth a great deal, and foams a little at the mouth. There is no cause to account for these fits, except perhaps an accident the girl met with when only eight years old, on which occasion she fell from a barge on the gravel, and received a severe wound on the left side of the scalp. Her sleep is very restless; she talks a great deal in her dreams, and attempts to get up whilst asleep. She complains much of headache, and, just before a fit, feels distinctly the aura epileptica. The fit was brought on first by a reprimand from her mistress, and continued occurring once daily until the 3rd of August. She had not been subject to epilepsy previous to the 27th of July, but had now and then what she calls a fainting fit, especially in summer. On the 3rd of August, the 5th, the 7th, the 10th, the 14th, and the 16th, she had one fit; from which date she continued to mend in all her symptoms, the fits not recurring; and on the 13th of October she was dismissed apparently cured.

Observations.—Oxide of zinc is one of the numerous tonics recommended for the treatment of nervous disorders; it has proved very useful in the hands of Dr. Herpin, of Geneva, and is considered as an important medical agent. Still, I am not aware that zinc, in form of oxide, has been found so efficacious in this country as abroad for the treatment of nervous affections; and my hospital practice offering a good opportunity of testing the value of this remedy, I have given the medicament in many cases of nervous affections. About nine out of every ten patients submitted to this treatment were either cured or remarkably relieved.

I have not yet employed this substance in a number of cases sufficiently extensive to allow me to state precisely where oxide of zinc ought to be administered or avoided, but from my observations it appears:—

1st. That the medicament is useful where giddiness, nervous weakness of sight and hearing, headache, and other symptoms of this kind are prominent; also in epilepsy, in which case it appears to possess peculiar medicinal properties; in chorea and for the treatment of general nervous debility.

2nd. That oxide of zinc can be administered without the slightest fear of danger, and that the only inconvenient symptoms it may produce are sickness and constipation.

3rd. That the dose of this preparation may be increased gradually to from fifteen to thirty grains and upwards daily.

I continue to avail myself of every opportunity to test the medicinal properties of oxide of zinc, and trust that it will be found useful by other members of the medical profession.—*Association Med. Journal, Nov.* 28, 1855, *p.* 1045.

16.—ON APOPLEXY IN RELATION TO CHRONIC RENAL DISEASE.

By W. Sexhouse Kirkes, M.D., Assistant Physician to St. Bartholomew's Hospital.

[The occurrence of Apoplexy, Congestive or Sanguineous, in connexion with advanced disease of the kidneys, has often attracted the notice of pathologists.]

"An analysis of the fatal cases of apoplexy which have fallen under my own observation, shows that in a large number the kidneys were extensively diseased. *I have excluded* from this analysis the cases of merely congestive apoplexy, for

the same reason that induced me to omit those cases of apoplexy, with and without albuminuria, which have not died, or not been examined after death, namely, because without the visible evidence of extravasated blood within the cranium, it is just open to the objection that one or more of these cases might not be purely apoplectic. I have excluded, also, those cases in which the brain only has been examined after death, or in which but an imperfect inspection of other organs has been made, because with the object at present in view, it was advisable to make use of those cases only in which a complete examination of all the important parts had been performed.

With these exclusions, I find I have notes of 22 fatal cases of sanguineous apoplexy, in which the thoracic and abdominal viscera, as well as the contents of the cranium, were more or less minutely examined after death. Of these 22 cases, the kidneys, in no less than 14, presented unmistakable evidence of disorganization: and with but few exceptions, the disorganization amounted to the small, hard, shrunken, and granular condition so characteristic of advanced renal degeneration: the kidneys in the remainder of the 14 cases being generally large and soft, and greasy-looking. So large a proportionate number as 14 out of 22 seems clearly to indicate that the renal disease bears a very close relation to the apoplexy. In order to determine the nature of this assumed relation, however, the analysis of the cases must be pursued farther.

Of the 14 cases in which the kidneys were diseased, there was only one in which the heart was not enlarged. The enlargement in these 13 cases was principally, and often exclusively, confined to the left ventricle. In five there was no valvular disease whatever to explain the hypertrophy; in four there was slight thickening, probably not amounting to inefficiency, of the mitral or aortic valves; and in four only there was sufficient valvular disease to account for the enlargement of the heart. So that certainly in five, and probably in nine cases, the cause of the enlargement was remote from the heart, and might with probability be referred to the coexistent disease of the kidneys. And, even in those cases in which the valves were extensively affected, the renal disease might be supposed to have contributed in some degree to the enlargement which the heart presented.

This part of the analysis, while it confirms the opinion almost generally entertained, that hypertrophy of the left ventricle of the heart is among the most common of the sequences and results of prolonged disease of the kidneys, would also seem to furnish us with the true interpretation of the connexion so obviously subsisting between advanced renal disease and apoplexy. For the researches of Dr. Burrows and others have placed it beyond a doubt that disease of the heart, especially hypertrophy of the left ventricle, has a most direct relation to apoplexy, constituting indeed, in many cases, the immediate cause of the attack. And since hypertrophy of the left ventricle, independent of valvular disease, is, as just shown, so apt to follow upon disease of the kidney, we seem to possess herein an intelligible explanation of the occurrence of apoplexy in connexion with renal disease; the hypertrophied heart being in such cases the medium through which the affection of the kidney manifests itself injuriously upon the cerebral circulation. In no other way, I think, can we readily understand how the renal disease should give rise to apoplexy. The impure condition of the blood, resulting from the detention of the excretory principles of urine, is capable of explaining many of the complex and often serious nervous phenomena that are apt to occur in advanced disease of the kidney, but it cannot be supposed to explain, at least directly, the rupture of the small blood-vessels of the brain, and the consequent occurrence of sanguineous apoplexy.

A still further analysis of the 22 cases of sanguineous apoplexy, which form the basis of the present inquiry, will help to explain the mode in which hypertrophy of the heart, whether dependent on valvular or renal disease, or on the two conjoined, or on any other cause, may lead to the apoplectic attack. For of the 18 cases of associated cardiac and renal disease, there were 12 in which the coats of the cerebral arteries were more or less strikingly diseased, while they were diseased also in five other cases, in which the kidneys were healthy, and in three of these latter there was enlargement of the heart. So that of the 16 cases in which enlargement of the heart was associated with sanguineous apoplexy, no less than 15, that is all but one, presented disease of the cerebral arteries. Without bring-

ing into this analysis any results of an examination into the frequency of disease of the cerebral vessels in conjunction with cardiac affection independent of apoplexy, the facts here given will suffice to show that disease of the vessels of the brain is even more closely associated with hypertrophy of the heart, than the latter is with disorganization of the kidney.

The intimate connexion thus apparently subsisting between sanguineous apoplexy on the one hand, and diseased cerebral vessels, enlarged heart, and renal disorganization, on the other, as deduced from the foregoing analysis, will, perhaps, be best apprehended by viewing the result of this analysis in a kind of tabular form. The 22 cases of sanguineous apoplexy may then stand thus:—

Cerebral Vessels.	Heart.	Kidneys.	
Diseased	Diseased	Diseased	12 times.
"	"	Healthy	3 "
Healthy	"	Diseased	1 "
"	Healthy	"	1 "
"	"	Healthy	2 "
"	Diseased	"	1 "
Diseased	Healthy	"	2 "
			22

From this it appears that

The Cerebral Vessels were diseased 17 times.
The Heart . . . . . " 17 "
The Kidneys . . . . . " 14 "

It cannot but be evident from this impartial analysis of 22 fatal cases of sanguineous apoplexy in which the different organs were carefully examined, that disease of the kidneys, heart, and cerebral vessels stands in very close relation to the apoplexy; and this relation is the more evident when it is borne in mind that in more than half of the cases, the kidneys, heart, and cerebral vessels were found coincidently affected, while in only two cases was there absence of decided disease of any of these parts.

Such being the principal information yielded by an analysis of these cases, two questions seem naturally to be suggested by it: first, what relation do the renal, cardiac, and arterial diseases bear to each other? secondly, what share do they severally take in the production of apoplexy? As regards the relation subsisting between the renal, cardiac, and arterial disease in sanguineous apoplexy, I believe that the affection of the kidneys is the primary disease, and that the other lesions are developed secondarily, and in the order just indicated, viz. hypertrophy of the heart, disease of the cerebral arteries, and extravasation of blood from rupture of these diseased vessels. That structural disease of the kidneys, of such nature as to interfere permanently, or for long, with their functions, has among its most frequent and prominent accompaniments a hypertrophied condition of the left ventricle is, as already said, a fact now almost generally admitted by pathologists. Of the various explanations of this pathological fact, the most probable perhaps is that which regards the blood as so far altered from its normal constitution by retained principles of urinary excretion, as to move with less facility through the systemic capillaries, and thus to require increased pressure, and consequently increased muscular growth of the left ventricle, to effect its transmission. To this, perhaps, may be added, among other additional causes, the direct influence on the circulation, resulting from the impeded transit of blood through two such large and vascular organs as the kidneys, in consequence of the structural change which has taken place in them. On whatever cause, or set of causes, it may depend, however, hypertrophy of the left ventricle of the heart, in consequence of prolonged renal disease, may, I think, be regarded as a well-established fact: and to the affection of the kidneys, therefore, may be referred the enlargement of the heart found in nine of the 13 cases of associated cardiac and renal affections in the analysis above given, and part of the enlargement noticed in the four cases where the valves were considerably diseased.

The relation borne by the hypertrophied heart, in cases of renal degeneration, *to disease of the* cerebral vessels, and, through these, to sanguineous apoplexy, will *require more* detail in its consideration. It is obviously a very close relation,

since, as already shown, the cerebral vessels were found diseased in 12 of the 14 apoplectic cases associated with cardiac and renal affection. In all the cases the disease consisted in the well-known yellowish-white thickening and deposit within the coats of the vessels. Into the nature of the deposited material it is unnecessary, for the present purpose, to inquire: suffice it to observe that, whether composed principally of fatty, earthy, or albuminous matter, it must probably be looked upon as resulting from a kind of degeneration of the natural textures of the arterial walls, and as indicating a weakened condition of those parts of the arteries where it occurs. It is, I think, generally believed that this affection of the coats of the cerebral, as also of other arteries, either consists of a primary and spontaneous degeneration, or is induced by, and indicative of, some general cachexia, which manifests itself, among other ways, in a tendency to a more or less wide-spread disease of the arterial system. If, however, any more direct explanation can be given of this disease of the arterial coats, it is obviously better to adopt it than to rely on either of the above, which convey but little definite meaning. For, although very various morbid appearances may result from some one diseased state of the system, as from a common cause; yet, when any one of these admits of being reasonably referred to a direct and special agency, it should be removed at once from the category of effects resulting directly from one common origin. And, although it is, no doubt, true, that without any previous disease, but simply in consequence of interference with one or more of the general laws relating to its nutrition, any tissue may undergo a process of degeneration; yet, in the absence of all certain knowledge of any such primary impairment of nutrition, it is better to seek for an explanation of the degeneration in some circumstance which has been known to attend the degenerative process, and to be capable of producing it. In the case of the cerebral or other arteries, although it may be that in advanced life, the walls may sometimes degenerate from simple wearing-out, just as other tissues atrophy in old age; yet, when this disease occurs in comparatively early life, and is associated with cardiac mischief, we seem to possess, in the enlargement of the heart, an explanation of the affection more intelligible than that referring it to primary and spontaneous degeneration, or to the result of some general cachexia. Indeed, I think it may be held as highly probable, that the disease or degeneration in question is, in great measure, the result of the continual over-distension and straining to which the arteries are subjected by the unwonted energy with which an hypertrophied heart propels the blood along them. Stretched and weakened in their tissue by long-continued undue pressure, it would not be surprising that the arterial coats should undergo structural changes somewhat analogous to the softening and degeneration which other over-strained and excessively-exercised tissues not unfrequently suffer. It may be, that before degenerating, the coats undergo a kind of protective hypertrophy, to enable them to bear up against the increased pressure to which they are subjected, and that degeneration only ensues when this compensating overgrowth has attained its utmost limit; just as we find degeneration to be more common in hypertrophied than in ordinary muscular tissue, as, for example, in the heart. That such is sometimes the case, viz. that before degenerating, the walls of arteries exposed to undue pressure undergo hypertrophy, that is, an increase of natural texture and strength, seemed to be shown in the following instance:—A girl, aged 14, previously in apparent health, having spent a day of unusual pleasure and excitement, was seized with a fit in the evening, and left hemiplegic on the right side. The paralysis continued until the child died, four months afterwards. In the anterior lobe of the left cerebral hemisphere was an old hemorrhagic clot; the brain was otherwise healthy, though the bloody points visible on section were unusually large. The middle cerebral arteries were gaping, instead of being collapsed as they usually are. The left ventricle of the heart was hypertrophied to an enormous extent, the walls being firm and compact, and nearly six times as thick as those of the right ventricle. There was not a trace of valvular disease to account for this enormous hypertrophy. The coats of the aorta were remarkably thickened, the thickness consisting apparently in simple increase in the natural texture of the tunics, which were strongly elastic, smooth on the interior, and apparently quite free from morbid deposit. All other organs were healthy except the right kidney, which was atrophied and reduced to about a quarter the size of the left, which

somewhat exceeded the ordinary dimensions. The gland did not seem diseased, but simply wasted. This case, while it showed increased growth of the aortic coats in conjunction with enlargement of the left ventricle, and thus favoured the view that hypertrophy of arterial walls may precede their degeneration when the latter is associated with enlargement of the heart, seemed to bear also very closely upon the general subject at present under consideration. For there was evidently a very close pathological connexion between the several morbid conditions found after death, namely, the apoplectic clot, the thickened coats of the aorta, the hypertrophied heart, and the wasted kidney. Why should sanguineous apoplexy occur in a subject so young? Why should the left ventricle be so enormously hypertrophied without any valvular disease to account for it? Why should the coats of the aorta be so greatly thickened without being evidently diseased? The answers to these questions suggested themselves at once. Something at an earlier period of the child's life had occurred to inflict irreparable damage on one kidney; the other had not grown with sufficient rapidity to supply its place; the elimination of urine had been imperfectly effected, and the elements of this excretion had therefore accumulated in the blood; the left ventricle of the heart had become hypertrophied in consequence of this continued impurity of the blood; to resist the increased pressure on their walls, resulting from the hypertrophied heart, the coats of the aorta, upon which vessel the first brunt of the excessive strain would fall, had gradually increased in strength and thickness; and thus for a time all had probably gone on well, under the circumstances: the walls of the ventricle and of the aorta growing in proportion to the increasing demand upon them; and so probably the child's life might have been prolonged for a considerable time, had not the heart's action been stimulated to an unusual degree by unaccustomed bodily and mental excitement, and the delicate vessels of the brain yielded to the excessive pressure to which they were in consequence subjected.

Numerous examples, less striking, perhaps, than this, but equally illustrative of the same chain of pathological phenomena, are continually exhibited in the dead-house of a large hospital. I adduce the present case, chiefly to show that simple thickening—a natural hypertrophy without disease—may occasionally be found in arterial walls in connexion with enlargement of the heart; and that, therefore, it may be presumed that in many cases of arterial disease associated with cardiac enlargement, the walls of the diseased vessels were hypertrophied antecedent to their degeneration. Whether this be so or not, however, the fact remains, that degeneration of the coats of arteries is frequently found associated with hypertrophy of the heart.

That the degeneration in question is, in a great measure, the effect, and not merely the attendant, or, as some suppose, the cause, of the enlargement of the heart, was an opinion first distinctly enunciated, I believe, by Dr. Dittrich, in a clever essay, containing the results of his investigations into the diseased condition of the pulmonary artery. Generally, it is believed that the pulmonary artery and its branches are rarely affected with the degeneration of their coats, analogous to that so frequently observed in the branches of the aortic system. Dittrich, however, has clearly shown that (as formerly pointed out by Mr. Paget), this view is erroneous; that disease of the coats of the smaller subdivisions of the pulmonary artery is by no means uncommon; and that, which is especially to the present purpose, the occurrence of this disease is almost invariably associated with those causes which impede the transit of blood through the lungs, and so lead to permanent distension of the pulmonary artery and its branches, and to consequent hypertrophy of the right ventricle. Of these causes, disease of the mitral valve, emphysema, and wasting of the tissue of the lungs, are, singly or combined, the most frequent. The almost invariable occurrence of diseases of the small pulmonary arteries in such cases, and the absence of the disease when no impediment to the pulmonary circulation exists, led Professor Dittrich to two important conclusions: first, that the circumscribed pulmonary apoplexy, so commonly found in such cases, results from the rupture of the dilated and diseased vessels, just as sanguineous apoplexy usually results from the giving way of diseased cerebral vessels; and, secondly, that the degeneration of the coats of the vessels is the *consequence of the* previous over-distension to which the artery and its branches *have been continually* subjected, by the excessive force of the right ventricle, and

the impeded transit of the blood through the lungs. Reasoning from what he found in the case of the pulmonary artery, Dittrich suggested that, most probably, the disease occurring so much more frequently in the coats of the general arterial system, is due to an analogous cause, viz. more or less continuous over-distension of the canals of the affected vessels. The frequent association of cardiac mischief, especially hypertrophy of the left ventricle, with general arterial disease, and the occurrence of the disease first, and principally, at those parts most exposed to the force of the moving blood, such as the early part and arch of the aorta, and the angles whence branches of the artery proceed, are among the principal arguments which he adduces in support of this opinion.

Assuming then as probable—and there seems abundant reason for so doing—that disease of arterial coats, especially when associated with hypertrophied heart is, as suggested by Dittrich, the result of continual over-distension of the vessels, we can readily understand why the cerebral arteries should present this disease in so marked a degree, for, in addition to the directness of the channel through which they receive their blood from the heart, and their speedy subdivisions, it is well known that they are unsupplied with the strong fibro-cellular sheath possessed by other arteries, and that their coats are, moreover, much thinner than those of arteries in general. For these reasons, therefore, it is natural to suppose that they will be especially liable to feel the force of a hypertrophied left ventricle, to be more or less continually over-distended thereby, and ultimately to have their coats diseased. Thus, weakened by both over-distension and disease, their rupture, and the consequent sanguineous apoplexy, are events which, especially under the influence of an hypertrophied heart, would seem to follow, almost as a matter of course.

The circumstances under which cardiac disease will perhaps be most likely to induce over-distension and degeneration of the coats of the small arteries, especially those of the brain, are those in which there is hypertrophy of the left ventricle without valvular disease—as when it results from renal disease—for then the full force of the hypertrophied ventricle will be exercised directly upon the arterial current. The frequent existence of more or less extensive disease of the coats of the aorta, as well as of the smaller arteries, in cases of associated renal disease and hypertrophied heart, is quite intelligible on this view, which refers the dilatation of the vessel, and the disease of its coats, to the over-distension produced by the enlarged heart. The opinion that disease of the coats precedes the dilatation, and induces both it and the enlargement of the heart, has but few facts in its favour. For it is more difficult to believe that degeneration of arterial tunics is dependent on the same general cause that produced the structural changes in the kidney, than that it results from the constant over-stretching to which the affected vessels have been subjected by a hypertrophied heart following upon the renal disease. Whatever gives rise to such continual over-distension of an artery, whether the undue force of the current of blood propelled by the heart, or obstruction to the distribution of the blood by disease in any large organ, may be supposed capable of producing degeneration in the arterial coats. In this way, perhaps, may be explained the thickened and dilated condition occasionally found in the renal artery in advanced disease of the kidney, for owing to the structural changes in the gland the transmission of blood through it will be impeded, and distension of the artery and its main branches consequently result.

If the views just stated be correct, we seem to have a satisfactory answer to the second question, suggested by the analysis of the fatal cases of apoplexy which form the basis of the present remarks, viz. What share do the renal, cardiac, and arterial disease severally take in the production of the apoplexy? Sanguineous apoplexy, when associated with advanced renal disease, may, I believe, be generally found dependent on rupture of one or more of the cerebral vessels, which have been weakened by structural changes in their coats; and it may, I think, be held that these changes in the coats are principally induced by continued over-distension of the vessels, resulting from an hypertrophied state of the left ventricle, so commonly found in such cases; and lastly, that this enlargement of the left side of the heart, when independent, as it often is, of valvular lesion, is the direct result of the renal disease. So that a primary structural lesion of the kidney may, in this manner, through the medium of the heart and cerebral vessels, which are secondarily affected, ultimately result in an attack of sanguineous apoplexy, which but for such renal disease might never have occurred.

As previously remarked, I have omitted from this investigation all mention of fatal cases of mere congestive apoplexy, also all cases of hemiplegia associated with albuminuria, although it is probable that many of these might, like the cases of sanguineous apoplexy associated with renal disease, be primarily referred to the affection of the kidneys. In all cases, therefore, of apoplexy or hemiplegia, it is advisable to test the urine for albumen, for beyond the direct information thus afforded of the probable state of the kidneys, an albuminous condition of this secretion may serve to explain, in the absence of any valvular disease, the hypertrophied heart which so frequently co-exists with the apoplexy.—*Med. Times and Gazette, Nov.* 24, 1855, p. 515.

17.—ON CHRONIC INTERNAL HYDROCEPHALUS TREATED BY INJECTION OF IODINE.

By Dr. J. M. Winn, Senior Physician to the Metropolitan Dispensary, &c.

[The majority of writers on chronic hydrocephalus, among whom we may mention Dr. West, Dr. Battersby, of Dublin, and Mr. Dendy, admit the inefficacy of paracentesis cerebri, with or without compression, on the assumption that congenital dropsy of the brain is invariably an incurable disease.]

Fully impressed with the inefficacy of the remedies hitherto employed in this melancholy disease, I determined, on meeting with a suitable case for the operation, to try the effects of injecting a weak solution of iodine into the brain, after evacuating the contents of the ventricles by means of a trocar. Through the kindness of Mr. Borlase Childs, I have recently had an opportunity of performing the experiment. The patient he sent to me was a little girl, fifteen months old, who was afflicted with one of the most enormously distended heads, from dropsical effusion, I had ever witnessed. Although the child's mother attributed the disease to a fall that it had sustained five weeks after birth, and which was followed by convulsions, she admits that the infant had a peculiar expression of the eyes, and was subject to startings of the limbs soon after it was born. I have therefore no doubt that the disease was congenital. The fall probably accelerated the effusion, as the head began to enlarge rapidly after the accident; its dimensions had gradually increased up to the day when I operated, at which time it measured twenty-four inches and a half in circumference. The bones of the head had acquired considerable thickness, and were united at the lambdoidal suture, and partly so at the inferior portions of the coronal suture. The anterior fontanelle measured about four inches in each direction. The child had an anæmial appearance, the natural consequence of having been confined in one of the closest and dirtiest courts in Spitalfields; in other respects it was tolerably healthy, and its bodily functions were duly and properly performed. Its perceptions and memory were fairly developed.

On the 3rd of October, with the concurrence and assistance of Mr. Childs, I tapped the head, and after evacuating seventy-two ounces of a straw-coloured serum, two ounces of a solution of tincture of iodine (fourteen minims to two ounces), previously raised to the temperature of the body, were slowly injected into the brain, where it was allowed to remain. A hydrocele-trocar was used, and the head punctured in the coronal suture, about two inches below the lower angle of the anterior fontanelle. Although compression of the cranium was maintained during the time the fluid was escaping, it was impossible, owing to the strength and resiliency of the cranial bones, to prevent a quantity of air from entering the skull. After the operation the head was firmly bandaged, a pad having been previously placed over the superior fontanelle, in consequence of its having become much depressed during the evacuation of the fluid. The child bore the operation well, and did not appear to suffer much pain.

Oct. 4th. Lies in a tranquil and comatose state; convulsed occasionally during the night; skull tympanitic; bowels and kidneys have not acted; skin warm; took the breast once: has also swallowed half a cupful of arrowroot, flavoured with port wine. I ordered calomel, two grains to be taken immediately.

5th. Bowels have acted freely; conjunctivæ suffused, and discharging abundance of mucus; pupils sensible to light. It has unfortunately happened that

the mother's sister committed suicide in the course of the night; and in consequence of the shock which her nervous system sustained on hearing of her relation's death, I deemed it advisable to order the child to be kept from the breast during the next twelve hours. I prescribed milk and beef-tea.

6th. The child sucks freely, and looks better; eyes less suffused. The head, although still tympanitic, has become so far reduced in size that I found it necessary to tighten the bandage. Bowels open.

7th. Not so well; surface cold; legs rigidly extended; refuses the breast, but swallows whatever is placed in its mouth; eyes have become more suffused. To take chlorate of potass, two grains and a half, every four hours.

8th. Has rallied from the partial collapse of yesterday; skin warm; took the breast once; takes a sufficiency of nourishment; muscular rigidity has subsided; bowels confined; urine scanty. There is not the slightest sign of a return of the dropsical effusion. To take a calomel purge, and to repeat the chlorate of potass mixture.

9th. Sucked once only; muscular tremors of the right arm; has passed one copious and dark-coloured motion. To take mercury with chalk, one grain, every six hours, and sesquicarbonate of ammonia, one grain, every four hours; to omit the chlorate of potass.

10th. No material change; has taken a considerable quantity of beef-tea and milk; bowels confined. Ordered to take castor-oil, and to continue the mercury with chalk every eight hours.

11th. Has lost ground again; feet spasmodically adducted; bowels freely opened by the oil; takes food less freely. On removing the bandages from the head, it was found that the protuberances of the frontal bone were slightly inflamed and ulcerated to a small extent on the right side. After bathing the head, the roller was carefully readjusted.

12th. Some slight improvement; appeared to recognise her brother for the first time; takes food more freely; eyeballs spasmodically depressed.

13th. Gradually sank, and died at half-past six a.m.

Being exceedingly anxious to obtain an examination of the head, I called on the parents the following day, and, to my annoyance, found them violently opposed to an inspection of the body. It was not until after half an hour's earnest talking that I succeeded in obtaining their consent, and then only on condition that I was not to use either a saw or hammer.

Autopsy, twenty-seven hours after death.—Owing to the strength and partial ossification of the bones, and to my being restricted to the use of a knife, the sphere of observation was greatly limited. I succeeded, however, in determining the following interesting facts:—The head had not enlarged in the slightest degree since the operation. The cavity of the arachnoid contained a large quantity of inodorous gas, and about six ounces of serum. The arachnoid itself was quite healthy. The brain, which was lying collapsed at the base of the skull, was much more vascular than natural, but its consistence was normal. The marks of the convolutions were quite distinct. The lateral ventricles were empty, and enormously dilated; their lining membrane was thickened, but smooth. On one side a small pellucid cyst, the size of a grape, was attached to the inner wall of the lateral ventricle by a small vascular pedicle. The cerebellum, the cerebral nerves, and other structures at the base of the brain, were in a natural condition. No fluid was discovered in the spinal canal. The opening made by the trocar through the right lateral ventricle had evidently become wider since the operation; the edges of the aperture, nevertheless, presented a smooth and healthy appearance.

Remarks.—Although the above case was only partially successful, it has been the means of eliciting some important facts, which may serve to guide us in the future treatment of a melancholy and intractable disease. It has shown that iodine may be injected into the brain without causing any poisonous effects, and that its strength may be so regulated as to produce an amount of stimulation sufficient to restore the balance between the secreting and absorbing functions, without causing destructive inflammation of the cerebral tissues.

In the first case, in which I merely tapped the brain, without employing an injection, the water began to re-accumulate in the head on the third day; whereas in the *latter instance, where iodine* was injected, there was no perceptible increase

of fluid on the tenth day after the operation. The small quantity of fluid found in the head after death was most probably part of the original serum contained in the brain before the operation, as I had purposely refrained from evacuating every portion of the serum.

Congenital hydrops cerebri is essentially a non-inflammatory disease, and the fear of exciting inflammation in these cases has led to the neglect of efficient measures. The brain is in a debilitated condition, and requires careful stimulation.

The details of the case which I have narrated prove that the shock of a severe operation on the brain is not necessarily fatal. The little patient recovered from the shock, and the principal functions of the body were restored. Had the child resided in a healthy locality, and possessed more stamina, the results of the case would probably have been more encouraging.—*Lancet, Nov.* 3, 1855, *p.* 408.

18.—*Treatment of Chorea by Blisters.*—Dr. Max Simon, several years ago, called the attention of physicians to the treatment of chorea by blistering. Since then, in a sanitary official report, M. Vandesleben has recounted three cases of prompt and permanent cure by the employment of blisters applied upon the arm and neck. Dr. Jensis has also published cases of a cure obtained by the same means, and remarkable from the fact, that the convulsive movements first ceased in the limb where the blister was placed, and finally gave way before blisters placed upon the other limbs and on the neck. M. Delaharpe, physician in Louisberg, has, in his turn, published four favourable observations of this mode of treatment, and makes the following remarks upon the subject:—"Chorea being almost always more intense upon one side than on the other, he chose the inferior extremity of the most affected side for making the first application; in the legs the blister was placed below the head of the fibula, and in the arm below the insertion of the deltoid—it was left on until the blister was raised. The first dressing produced ordinarily an increase of the choreic convulsions; but this did not continue, and upon the second or third day after the application the disordered movements were much mitigated, not only in the limb where the blister was applied, but in the others also. As soon as the first blister has ceased to suppurate another is applied—its curative effect is more marked than the first, for often all the spasms have ceased in seven or eight days of this treatment. When the chorea is intense, and of long standing, a third blister will be required; it should be placed upon the neck. This last application is above all necessary if the head be much affected. At the end of six or seven days the cure is in general completed—the chorea has disappeared; but in order to avoid a relapse it will be necessary to have recourse to general treatment." M. Delaharpe remarks, that in the cases of thin weakly children the action of the blisters is most beneficial. In the cases of stout, strong children, which, however, are rare, success is less certain. When the spasmodic movements have disappeared, cod-liver oil, quinine, and iron are to be administered, according to the indications.—*Dublin Hospital Gazette, Dec.* 1, 1855, *p.* 335.

DISEASES OF THE ORGANS OF CIRCULATION.

19.—ON THE HEMORRHAGIC DIATHESIS.

By Dr. Hyde Salter, Assistant Physician to Charing-Cross Hospital School, and Assistant Physician to the Hospital.

[In order to obtain correct physiological views of this subject, we must inquire,—What is the anatomical condition of hemorrhage? We may define it to be the rupture, or rather a solution of the integrity, of the wall of a sanguiniferous vessel. The general opinion is, that blood may escape from its vessels by *rupture* and by *exhalation*. Dr. Watson says, "There seems no more necessity under the action of disease for a rupture of vessels to give exit to the blood, than to give exit to mucus, serum, or sweat;" but he cannot tell us how this takes place; indeed, we *know that it* is impossible, physically impossible, for blood to escape from capil*lary vessels without* their rupture. In the first place, they have no natural aper-

tures through which any solid particles can escape; and, in the second place, blood-globules are cells of definite shape and size, incapable of transuding an imperforate membrane, or of solution, except by their destruction. The escape of serum through the vessels is a different thing. The exhaled material here is entirely fluid, and the process is physical; whereas the escape of blood-globules is mechanical. Instead of accepting the exhalation theory of hemorrhage, we believe the immediate pathological condition on which it depends to be a morbid friability of the capillary walls, so that they rupture under the slightest force: it is, therefore, a textural disease of the capillaries.]

What makes the capillary membrane unduly friable? It must be some vice in its nutrition, whereby it loses some of its normal physical properties—its toughness, and power of resistance. And on what does this vice of nutrition depend? Here we are met by two possible explanations:—one, that it depends on a quantitative or qualitative deficiency in the blood of that particular plastic material on which the capillaries draw for their nutrition; the other, that the blood being in no way divergent from the normal standard, the deficiency resides in the capillaries themselves, that their nutritional affinities are debased, their plastic power depressed, and that thus they fail to form from the healthy material presented to them for their recrement the proper quantity or proper quality of tissue. Of these two theories, the first is the one I am disposed to adopt: it seems to me the most simple, the most plausible, and the most probable. All *diathetic* textural degenerations, with which I am acquainted, are blood diseases—primarily humoral. We may, probably, never detect what this specific peculiarity of the blood is, any more than we may in *struma* or *cancer;* but it is not the less theoretically probable. If, then, I were asked, what is the essence of the *hemorrhagic diathesis*, I should say, that it consists in a vice of assimilation issuing in a special spanæmia, the blood being poor in that particular material from which the capillaries—perhaps homogeneous membranes generally—derive their nutriment. We know that the relations between the blood and tissues are infinitely subtle, and delicate, and complex, and there seems to me nothing far-fetched or imaginative in such a theory.

The view that the disease consists essentially in depressed assimilative power, is confirmed by the circumstances that produce and aggravate it: deficient or bad food, overwork, cold, damp, and darkness, irregularity of life, and exhausting excesses, are its most fruitful causes; and old age, the time of life characterized especially for failure of the assimilative powers, is the time in which it is most pronounced—indeed a special form of it, known as *purpura senilis*, has received its name from this very circumstance. That the spanæmia is *special* not *general*, that the blood is poor in some particular material, and that it is not a general poverty, we are sure, because we know that, even in extreme cases, the general nutrition may be unimpaired, all the other tissues well nourished, and because we see that there are only certain people in whom the disease can occur; that in some any source of depression will bring it on at once, while in others you may have starvation, exhaustion, and depletion, almost to death, and a condition of the extremest general blood poverty induced (as for instance after protracted illness, or in women by flooding), and yet not the slightest disposition to capillary hemorrhage.

[We will now very briefly mention the case of a woman, aged 50, lately under treatment. When first seen as an out-patient, there was a general bruised and speckled condition of the surface, she had no hemorrhage from other parts, and had been in this state for about three months; shortly after this time her gums began to bleed, and although it stopped in a few days it began again and continued to increase until she spit about two quarts daily; she was getting very weak and faint in consequence. When first seen, she was ordered sulphuric acid and iron; but when the bleeding from the gums came on, she was ordered an alum lotion, and a mixture of alum, sulphuric acid, and decoction of bark; as the bleeding still continued she was advised to come into the hospital.]

Let us now, assuming as granted the pathology of the disease as I have above enunciated it to you—that it is special spanæmia or blood dyscrasia, issuing in the deterioration and debasement of a special tissue—inquire what our treatment ought to be. It should, *in my opinion*, involve these three things—

1. The supply of an abundant and generous diet, rich especially in those alimentary principles which are plastic or tissue-forming; that is, those belonging to the albuminous group.

2. The administration of such medicines as increase and invigorate the powers of assimilation, and, therefore, of healthy sanguification, either through the nervous system, or by appealing immediately to the organs of digestion; such are tonics.

3. The arrest and prevention of hemorrhage, by using all available means of stopping bleeding, and by the exhibition of local and general anti-hemorrhagics.

The last is the treatment of symptoms; the first two, of the absolute pathological condition; the last is directed to the arrest of a drain, by the continuance of which, and the consequent impoverishment of the blood, the disease becomes self-supporting, and by which, in fatal cases, it ultimately exhausts the patient; the first two, to the production of a fabric of good quality by the supply of a good and abundant raw material, and by increasing the efficiency and working power of the fabricating machine. Two elements of this threefold treatment—the first and the last—are absolutely necessary. Unless the standard of the food is kept up the blood must suffer; we see how efficient a debased food alone is in producing capillary hemorrhage, in the allied disease of *scurvy*; and unless the drain of the hemorrhage is stopped, the blood cannot recover itself, for its most precious elements thus draughted away are replaced principally by water, and are themselves slow of recrement; to give food and medicine without stopping the bleeding, is, to use an expressive vulgarism, like "saving at the tap and letting out at the bunghole."

It was with these principles in view that I treated the case, and its subsequent history is told in a few words:—

When she came in, which was on October 16, I ordered her to take, three times a-day, the following draught—Acid. gallic. gr. v., acid. sulph. dil. ℥xx., dec. cinchon. ʒiss. I put her on full diet, and gave her in addition, a mutton chop, two or three eggs, and a free supply of milk daily.

The report of the 18th is:—Not so well; the bleeding from the mouth profuse; the teeth clogged and clotted; several handkerchiefs saturated; one large ecchymosis on the tongue, black in colour, and covered only by the epithelium, as big as a sparrow's egg, and several smaller ones—the smaller ones seem to have their seat in the fungiform papillæ. She was ordered, for neuralgic pain in the course of the sciatic nerve of the right leg, a liniment, of equal parts of lin. opii and lin. camph., to be rubbed in night and morning.

19. The mouth still bleeding freely, the patient very much exhausted, flushed face, feverish, and restless. Ordered—Ol. terebinth., to be freely applied to the mouth three times a-day, with a sponge.

22. The turpentine has completely stopped the hemorrhage from the mouth. A large ecchymosis formed during the night as big as an egg, in the loose areolar tissue beneath the left tendo-Achillis, from which she lost half-a-pint of blood. The spots of both kinds are scattered as thickly over the body as ever, covering the entire surface with patches and specks of all colours. Very little sleep: pulse weak and rapid. Ordered—Acid. sulph. dil. ℥ xx.; ferri sulph. gr. iv.; magnes. sulph. ʒ ss.; inf. calumb. ʒ iss.; to be taken three times a-day. The liniment to be continued, and the following pill to be taken every night, to secure some sleep —Morph. hydrochlor. gr. ¼, extr. lactuc. gr. iv.

[After this time she slowly improved. The spots began to fade, and no fresh ones appeared, her appetite was good, bleeding ceased, skin was clear, and she soon left the hospital cured.]

I think she owes her great improvement to her high living and the tonic medicine, especially the iron; you will observe, that it was within two days after commencing to take 12 grains of sulphate of iron a-day she began to improve. She has taken that ever since, and she must continue to do so. She attributes, herself, the cessation of the hemorrhage to taking black-currant jelly; but my own opinion is that it had nothing to do with it, but that she happened to take some when the iron was beginning to tell upon her. On leaving she will have to take great care, and to continue the same diet and medicine, in order to avoid relapsing into her former condition. I do not consider her cured. I do not think such a case

admits of cure, in the strict sense of the word; it will be liable at any time to recur, and any source of depression may reinduce it; but it is, for the present at any rate, most efficiently controlled.

On watching the gradual disappearance of petechiæ and vibices under the administration of such medicines as mineral acids and iron, the question naturally suggests itself to one's mind: How do these medicines act as anti-hemorrhagics in such a case as this; how do they check capillary hemorrhage? Do they act merely as tonics and favour the production of a less friable capillary wall by improving assimilative power, or as general styptics also? I believe the former, and not the latter. I believe the circumstances of the case render it impossible that they can act as styptics? We know that great dilution destroys styptic action; acids no longer act as styptics when neutralized by alkalies. I think it, therefore, impossible that the anti-hemorrhagic action of such a medicine as sulphuric acid for instance, introduced in doses of a few drops in a dilute condition into from 20 to 30 pounds of blood containing carbonate and tribasic phosphate of soda, and permanently alkaline, can have anything styptic in its *modus operandi*. Iron has clearly the additional advantage of supplying an essential material.

Let me now, in conclusion, just briefly recapitulate the points that I would particularly press on the attention.

1. That the disease is a disease of nutrition,—a special error in assimilation, resulting in a special structural lesion; that, although there are some forms of it that would make one think that it depended on some special vice of nutrition in the minute sanguiferous vessels themselves, as, for example, where it occurs in florid, well-nourished, and otherwise healthy subjects, yet that there are other considerations that tend to throw back the starting-point of the mischief to an earlier stage of the process of assimilation, and to imply that it takes its origin in an imperfect sanguification. That the specialty of the nutritional vice, and its restricted locality, in no way contravene the view that throws so far back, and on the general medium of nutrition, the origin of the textural degeneration; for we know that, even in health, the relations between special local nutritions and special blood elements are infinitely complex and infinitely delicate, while in disease there seems no limit to the specific structural derangements dependent on specific pathological conditions of the blood,—witness skin diseases. The circumstances that induce us to throw on primary assimilation the onus of the mischief, are:—

a. That the causes that aggravate the disease are those that impair sanguification.

b. That the evidence associating the hemorrhagic tendency with a condition of blood below par seems indisputable.

c. That the diathetic cachexies with which it is associated are those depending on specific primary mal-assimilation, *e.g.* rheumatism.

(With regard to the physical condition of the blood associated with the hemorrhagic tendency, we must not forget that the hemorrhage itself gives rise to a condition of blood below par, and thus that its watery condition may hold the place of a result, and not a cause.)

2. That the pathological condition is anatomical, and the special morbid anatomy, *ruptured capillary*.

3. That it cannot be explained by a mere qualitative derangement of the blood, an imperfect coagulation, or anything of that sort, as no change of the blood's qualities can explain the transit of blood cells through healthy capillary wall.

4. That the disease is eminently diathetic, the symptoms that show it being,

a. Length of time—the symptoms being sometimes manifest throughout the entire life of the individual.

b. Inheritance—a circumstance invariably involving diathesis.

c. Association with other diathetic conditions, as complexion, and diseases of undisputed diathetic character, *e.g.* rheumatism.

5. That, however, as shown by the second case I have narrated, the diathesis may either be latent through a long life, and developed by external agencies, a fact not at all inconsistent with its diathetic nature—witness struma, gout, rheumatism; or, secondly, that it may be acquired late in life; or, thirdly, that sources of depression and exhaustion may give rise to idiopathic hemorrhage of exactly similar character, *without any diathetic* hemorrhagic tendency.

6. That any source of depression will aggravate or induce it—witness the frequency of purpura among the London poor of the worst kind.

7. That it increases with age, age probably acting as a depressant.

8. That it is a disease for which we possess no specific; that all we can do is to arrest blood-loss, and to supply the conditions of healthy assimilation by an abundant and generous diet and the administration of tonics; that the most valuable of these is iron.—*Med. Times and Gazette, March* 15, 1856, *p.* 258.

20.—CASE OF HEMORRHAGIC DIATHESIS.

By Dr. John R. Miller.

[To stand by a patient hour after hour, and see his blood slowly but surely draining away, while you have vainly had recourse to every expedient likely to be of any use, is a position of no common difficulty and anxiety. The following is a case of spontaneous hemorrhage, in which the bleeding from the gum was only arrested by the extraction of the tooth in its immediate vicinity.]

The patient, a gentleman of middle age, of a pale, anæmic habit, has been subject, from his earliest years, to occasional violent bleedings, which have been arrested always with great difficulty. In his boyhood, it took the form of epistaxis; in later years that of the hemorrhoidal flux. His life, at one time, was considerably endangered, owing to uncontrollable hemorrhage, resulting from a few leech-bites; at another, from the removal of a tooth; and so alarming were the consequences of this latter operation that he was solemnly cautioned by the medical men in attendance, that on no account must he ever consent to have another extracted.

On the 25th of July last, while residing in the country, after a greater amount of exertion than usual, he commenced, at 11 P.M., to spit blood; and upon examination it was found to proceed from around the neck of the first lower molar on the right side.

The tooth was very loose, owing to absorption of the alveolar process, and the free edge of the gum embracing the tooth, showed an ash-coloured line of ulceration, from which the blood was seen to issue. The gums were in a very relaxed condition, but did not present the smallest scorbutic appearance.

At first astringent lotions of myrrh, alum, catechu, were employed; then the part was touched with the tincture of the muriate of iron, and a purgative of compound powder of jalap was administered, followed by small doses of sulphuric acid; after which the acetate of lead and opium pill was had recourse to.

In seven hours from its commencement the bleeding stopped, but broke out again at 1 P.M. (26th). Similar measures were again employed, but without success; and the bleeding, which was considerable, having now continued for other five hours, the patient was seen by Dr. Brown, of Melrose, who, of course, at once recommended the extraction of the tooth; but, on learning the hemorrhagic constitution of the patient, he agreed with me that this plan could not be thought of.

Having found gallic acid of great service in cases of passive hemorrhage, he thought it might be tried here with advantage. He also touched the part with creosote, and failing good effects from this, recommended the mouth to be washed with tinc. of mur. of iron, largely diluted.

The creosote produced no beneficial results; the bleeding continued unchecked for eight hours more, when a temporary cessation occurred (2 A.M.); but only to be renewed at 1 P.M. of the same day. We now tried ice externally, by means of a bladder, and the nourishment—which was chiefly strong beef-tea—was given cold. Iron internally was added to the other remedies. But the hemorrhage was in no way influenced for the next fifteen hours, when it suddenly ceased on the 28th, 4 A.M.

Matters were now assuming a very serious aspect. As near as we could calculate—making due allowance for the admixture of saliva and different lotions he was using—the patient had already lost at the rate of about 3 j. of blood for every *three minutes* during which the bleeding had lasted, and that, for the thirty-five *hours of actual* hemorrhage since the night of the 25th, gave between five and six

pounds of blood. It was not, however, consequent upon the amount of blood lost, that grounds for immediate anxiety existed; for, although he was very weak and exhausted, which the want of sleep and proper nourishment had increased, yet the pulse indicated nothing hemorrhagic, but was of moderate fulness, slow, easily compressible. Could we have assured ourselves of no further hemorrhage, a few days would have sufficed to restore the patient; but, with the experience we had already had, we held no guarantee that the blood might not at any moment burst out afresh; and we could not but feel how impotent the measures hitherto employed had been, and that nothing further we could suggest gave promise of better success in the event of its recurrence.

Under these circumstances, therefore, it was considered desirable to call in further advice.

Dr. Begbie and Mr. Nasmyth, who now saw the case, recommended *pressure* with dry lint should the bleeding return, and in the meantime to continue the internal use of the iron. At this stage the gum and neighbouring parts were a good deal swollen and blackened by the tinct. of iron and creosote; coagula were also adherent; the mouth was opened with difficulty, and a satisfactory examination was scarcely now possible, as much from the risk of again inducing hemorrhage as from the confused state of the parts.

On the evening of the 30th, at 7 P.M., when the sloughs were becoming detached, and the mouth assuming more its natural appearance, blood was again suddenly poured forth. Owing to the second molar being in its place, it could not be clearly made out whether the ulceration, which was visible around the sides and anterior portion of the first molar, extended likewise to the portion of gum lying between. It was probable that it did; at this point, however, pressure was inapplicable. Indeed, consequent upon the extreme mobility of the tooth, and the existence of ulceration—a condition of itself, under ordinary circumstances, unfavourable to the employment of pressure as a means of arresting hemorrhage—it became a matter of extreme difficulty, as well as uncertainty, the application of pressure at all. It was necessary to employ, not only pressure, but counter-pressure, so as to keep the tooth as steady as possible. The forefinger and thumb applied over a roll of lint, close up round the neck of the tooth, seemed the method best calculated for fulfilling the object in view; but the least movement on the part of the patient, or unsteadiness of the operator, must at once displace the relative position of the compress and bleeding surface. And so it proved. The lint became frequently soaked with blood, and had to be renewed; but at last, towards morning, the bleeding appeared to be under control, and at 6 A.M. of the 31st it ceased altogether, the lint remaining *in situ*.

Hopes were now entertained that the hemorrhage was at length combated; but these were soon doomed to be disappointed, for at 11 P.M. the same evening it recommenced as profusely as ever; and although fresh compresses were re-adjusted again and again, and the pressure sedulously maintained, it not only produced no effect in checking the flow, but seemed even to increase it. It was, therefore, laid aside, and the former measures resorted to. The bleeding, after having lasted nine hours, ceased, as on previous occasions, spontaneously.

It was now evident that the patient could not sustain, for many days longer, such a continuous drain on his system. It was like a man living on his capital, with no prospect of further supply sufficient to meet his daily expenditure. It resolved itself, therefore, into a question of *time*. How long could the patient live while no blood, at least none of a proper quality, was being formed to replace that being daily lost? The patient must sooner or later die of *anæmia*. Other unfavourable symptoms, likewise, were now manifesting themselves. He showed a distaste to all kinds of nourishment; his pulse, though slow, was small, very compressible, and frequently intermitted. He was unable to sleep, and was becoming restless and feverish, for which opiates had been tried, but were found inadmissible.

On considering all the circumstances of the case, it was now proposed by Mr. Nasmyth, that if the bleeding returned, the tooth should be removed. This was in the face of the known tendency of the patient, and especially contrary to the warning he had on a former occasion received against *extraction* in particular. But it was now obvious that neither pressure, styptics, local applications, nor internal remedies, were of the *slightest* avail. The tooth out of the way, pressure

could then be more directly applied to the bleeding points, and with some probability of success. The contraction of the gum, likewise, would of itself do some good. At all events, matters could scarcely well be worse than they were at present. An opportunity soon presented itself for putting it into practice.

On the morning of the 3rd August, the hemorrhage re-appeared as before; the tooth was extracted with the forceps with little difficulty, and the gum lightly compressed. Only the usual amount of bleeding followed, and our astonishment was only equalled by our satisfaction, to find that in a short time it ceased entirely. A recurrence took place after a few hours, but under the use of pressure with the finger, and diluted tincture of matico, the amount was not very considerable.

This was the last of it.

And now, naturally enough, my first feeling was one of unqualified regret that this plan had not been adopted at the outset; and there may not be wanting some who may be disposed to censure me for indecision and an error in judgment, for having relinquished this course out of preference to the other. But, it may be well to consider, how easy a matter it is for one who has been forced to make a leap in the dark, and suddenly finds himself on the other side sound and well, to ridicule the hesitation and fears of another who knows not the extent and danger of the gulf yawning at his feet. It would, assuredly, have been a proceeding open to the imputation of unpardonable rashness, had I—with the recorded cases of a fatal termination following the extraction of teeth, in not a few instances, where, as in the present one, hemorrhagic constitution prevailed—at once removed this patient's tooth, before having made trial of every other measure which seemed likely to promise relief.

The sequel of the case, I think, shows that the tooth was the exciting cause of the hemorrhage, and had it been allowed to remain in, the patient must at length have sunk from loss of blood. The appearance of the tooth, one fang of which was roughened and darker than the other, indicated an inflammatory action of the socket, and the portion of the fang which was dead, acted like a foreign body, and kept up the irritation. The danger here, therefore, arose from the *presence* of the tooth, a feature which removes this case entirely from comparison with others, where danger has only commenced *subsequent* to extraction; and were we to lose sight of the antecedents of our patient, we might be led into the error of considering it not one of hemorrhagic diathesis at all, but merely an illustration of great local disturbance of the capillaries of a particular spot.—*Edinburgh Med. Journal*, *Jan.* 1856, *p.* 638.

21.—ON SOME POINTS CONNECTED WITH CARDIAC PATHOLOGY.

By Dr. W. Hughes Williams, Assistant Physician to the Charing-Cross Hospital, &c.

[The following case will bear upon some points only but recently investigated, and which are essential elements in the neo-pathology, or "young medicine," of our time. The patient was a married man, aged 28. He states, that about two months before admission he was under treatment for lumbago and gravel; this improved, but the pain extended down one leg, which he dragged when walking; he had frequent and intense pain in the head, with other symptoms of febrile excitement; his mind wandered, and in a few days he lost the use of the right side, for which he was salivated and blistered.]

On admission, hemiplegia of the right side existed: the tongue, when protruded, curved markedly towards the right side of the face. The latter was slightly distorted when the patient was made to smile, but there was no ptosis. The countenance seemed somewhat heavy, the pupils were natural, but the tongue was coated with a dark fur, and was, if not actually dry, certainly deficient in moisture. It was impossible to understand what he intended by his replies to any questions put to him.

When we saw him the next day to his admission, we found him in this same condition; and we also observed, that though he appeared to understand all that *was said to him*, he answered "*No*" to everything, whatever it might be. We *made him over* and over again contradict himself, as an *experimentum crucis;* and

from this, coupled with the fact that he put out his tongue when told, pulled up his shirt, took a pencil in his left hand when we told him to try and write, and then put it in his mouth, to write with it in that position, we assumed he could not help saying "*No*" to whatever we asked him, though he must have been aware it was often the wrong answer to give. The bowels were rather confined, and the motions were passed without control. Of his scrawls with the pencil we could make nothing, and, up to the present time, we have been unable to glean any further history of the case than that resulting from our observation.

Now, here was a case of simple hemiplegia, but it occurred, as I remarked to you at the bed-side, much earlier in life than it usually does; and moreover, the paralysis had not been preceded by any apoplectic fit, or coma, or loss of consciousness, so far as we could make out, though it was not improbable it might be sooner or later followed by such an event, if more blood should be extravasated. Though the skin was moist, the state of the tongue showed that the system was still suffering from what we may term the primary or acute irritation of the supposed hemorrhagic effusion. We put a blister behind the patient's neck, gave him the nitrate of potash in scruple doses, and some cathartic mixture. I did not perceive there were any indications for anything further. Indeed, the man has been under the same method of treatment until the present, and you will perceive how much he has improved. His tongue is quite clean, his appetite has returned, he can, with assistance, use the night-chair, instead of having involuntary defecations, and he attracts our attention occasionally by getting out the paralysed arm from beneath the bedclothes, to show it, as if it were improving. It appears, however, to be like a dead weight to him, as does, also, his right leg, poor fellow. Now, what I want to direct your attention particularly to is this: I was remarking at the bedside upon the propriety of endeavouring to find out, if we could, what might have been the cause of the disturbance to the cerebral circulation, or what gave rise to the assumed hemorrhagic extravasation. Amongst other points, I told you that in modern times disease of the heart, particularly hypertrophy of the walls of the left ventricular chamber, had been regarded as a frequent cause of apoplexy and its consequent paralysis. How it operated, or even whether a chain of causation and effect between the two had been fairly established or not, I did not then, nor shall I now, stop to inquire. I passed on to tell you, however, that for some time past investigations had been prosecuted at one of our large hospitals, and which went to show that obstruction of a main cerebral artery might take place from the lodgment in it of a plug of fibrine, which plug had been detached from some of the valves on the left side of the heart, where it originally grew in the form of a warty growth or excrescence. The result of this plugging would be, in perhaps the majority of cases, to pervert the healthy nutrition of the part, the result of which, again, might be the occurrence of ramollissement, or softening of the brain, and thus the sequence of paralysis consequently followed. I said we would therefore examine the heart in this case, and find out whether the valves betrayed evidence of lesional disturbance. You will recollect that no sooner had I applied the stethoscope to the precordial region than I stated that a loud sawing soufflet was plainly audible over most parts of it. Several of you had at the same time the opportunity of corroborating my statement. We found the heart's shock not stronger than natural, but diffused over a somewhat wider area than normal; from a little to the right of the nipple towards the apex of the heart, the first sound, and part of the second, were so covered by either the rough blowing or aspirated sawing sound, according to which term you choose to bestow upon it, that the two normal sounds of the heart could scarcely be divided from each other. At the base, the first and second sounds were distinctly separated from each other, the former being accompanied by a sawing soufflet, and which slightly invaded the first part of the second normal sound too. Where the abnormal bruit had its seat of chief intensity, whether at the base or at the apex, we were not at all agreed. I have been undecided since, when I have examined the patient, but now I should be inclined to say it culminates, as it were, midway between base and apex. It is heard distinctly behind, near the edge of the scapula, and it is also heard in the carotid arteries. Without wishing to appear over-refined in the diagnosis, I should say that we have here both mitral regurgitation and aortic constriction; at any rate, there is, to my mind, evidence of *important valvular disease* of the left side of the heart, the bruit evidenc-

ing which belongs rather more to the rough than to the soft type of murmurs, and which roughness indicates irregularity somewhere of the surface of the blood-course or channel.

Now this patient, Edward K——, strangely enough illustrated to some extent the remarks I had just made to you. We might have had case after case of paralysis, and either no evidence of heart-disease, or only of hypertrophy. But here was one indicating a probable roughened condition of the valves of the heart's left side, the detachment from which of some fibrinous growth, and its arrestation in the blood-stream of a cerebral artery, had been, as I told you lately, pointed out as a cause of certain forms of paralysis. There are yet one or two more points I must dwell upon. Dr. Kirkes, of St. Bartholomew's, to whom we are so much indebted for a great deal of what we know about this matter, explains in this way many cases of partial and temporary paralysis suddenly ensuing in one or more limbs of *young* persons, and, so far as I recollect, would deem the paralysis thus produced as always the result of softening, or some perverted nutrition of the brain, rather than of hemorrhage; and hence such cases thus produced would necessarily evince a somewhat different set of symptoms to those resulting from true apoplexy. In the case before us the man is only 28 years old; has had no coma: is not a full-blooded, short-necked man, but the paralysis appears to me to have come on progressively or gradually. We examine his chest and find disease of the valves of the heart. Now, may we regard the case before us as one possibly, if not probably, coming under Dr. Kirkes' category? If the doctrine I have alluded to should hereafter not seem to be sufficiently established by observation, it is one you should at any rate have knowledge of, and as the present case seemed to offer me the opportunity of referring to it, I have thought it my duty to do so. It is necessary that I should tell you, however, that I cannot make out that our present patient has ever had rheumatism, and that to my mind there is some little difficulty in reconciling a *sudden* form of paralysis with arterial plugging by a detached growth, not followed by hemorrhage. If the result of the plugging is softening, the result of softening is not generally sudden, but progressive. Why should not, then, the paralysis be more progressive than it is assumed to be, and as it usually is, in cerebral ramollissement. It is true we do meet with cases of softening so sudden in their symptoms, as to lead the practitioner to think he has a case of cerebral hemorrhage to deal with, and my predecessor, Dr. Rowland, wrote, you know, a book upon this very subject. But, then, this is the exception and not the rule, whilst in the other case it is assumed as the rule, and not the exception. If the paralysis be due to the atrophy and degeneration arising from the supply of blood being cut off from the part, one would think it would be more gradual, or the symptoms more progressive than in those cases in which they are laid down as occurring.—*Lancet*, *Feb.* 2, 1856, *p.* 122.

22.—ON THE TREATMENT OF HEMOPTYSIS.

By M. Aran.

M. Aran agrees with those who entirely condemn the employment of blood-letting in the treatment of hemoptysis, as it only temporarily arrests the bleeding, while it is dangerous, owing to the debility, and increased susceptibility to the intercurrent affections it gives rise to. He has, for some time past, been engaged in testing the efficacy of the various hemostatic agents employed in hemoptysis; and in this paper he gives the results of his observations. He considers the essence of turpentine a most valuable remedy, given in doses of from 10 to 30 drops every hour, either in a spoonful of water, or mixed up with magnesia as a bolus. Marked amendment usually occurs in a few hours, and in from twenty-four to thirty-six hours the bleeding ceases. It is less suitable for young or plethoric subjects with febrile action, than in weak cachectic individuals, exhibiting atonic characteristics. Ergot of rye and ergotine are far less efficacious; but chloride of sodium, given in doses of 1 to 2½ drachms, proves very efficacious in some cases, *and has the advantage* of being always at hand. Among the astringents, tannin, *and especially* gallic acid, are to be recommended; the latter, while quite as

efficacious, does not exert the same desiccating effect upon the tissues, or induce the obstinate constipation produced by tannin. As a mean dose, M. Aran gives 15 centigrammes (a centigramme is one-seventh of a grain) every hour or alternate hour. He has had little experience in the use of emetic and nauseating remedies; but in three cases in which veratrine was employed, the bleeding ceased as if by enchantment. This class of remedies, indeed, would deserve to stand in the first class of hemostatic agents, were there not others possessing like efficacy, and yet not giving rise to the painful nausea these produce. M. Aran has derived great advantage from the combined use of digitalis and nitre. In ordinary cases, he gives in the twenty-four hours, 80 centigrammes of digitalis, and 1½ gramme (a gramme is 15 grains) of nitre, divided into four doses; but in very severe cases these doses may be very much increased, so that the digitalis has been given to the extent of 1½ gramme, and the nitre to 4 grammes, without injuriously affecting the action of the heart, while the effect produced on the hemorrhage has been remarkable. Its arrest never, however, takes place so suddenly under the use of these medicines, as when turpentine or gallic acid is employed.

In abundant, but not immediately dangerous, hemorrhage we can choose among any of the above-mentioned means. In extremely abundant hemorrhage, we must arrest the flow as speedily as possible, by agents which do not depress the powers of the economy too much, and which are not too slow in their operation. Neither ergot, acetate of lead, nor alum is sufficient to meet the danger. Turpentine, gallic acid, chloride of sodium, or nitre with digitalis, can alone be trusted; but the necessity of increasing the dose with the intensity of the hemorrhage may, perhaps, render the chloride of sodium, and especially the nitre and digitalis, dangerous, through the possibility of the production of a too great depression of the heart's action. It is, therefore, to gallic acid or turpentine that we must chiefly trust in these severe cases; and we must not limit ourselves to their employment, but also endeavour to procure a temporary arrest of the hemorrhage by ligatures to the limbs and the application of ice to the chest, allowing the means employed internally to consolidate this temporary cure.—*Med. Times and Gaz.*, *Jan.* 26, 1856, *p.* 95.

23.—ON THE INFLUENCE OF PRESSURE IN MODIFYING AUSCULTATORY SOUNDS.

By Dr. William Jenner, Physician to University College Hospital.

[The influence of pressure in the production, intensification, and modification of certain morbid sounds, generated in the region of the heart, was well illustrated in a case of pericarditis, some of the points of which we may mention.]

When the stethoscope was placed over any part of the præcordial region between the fourth and seventh costal cartilages, two abnormal sounds were heard with each beat of the heart—one systolic, the other diastolic—I say systolic and diastolic, though they were not completely synchronous in point of time with the heart's systole and diastole. Loud as were the murmurs, especially the systolic, over the heart, they were not audible when the stethoscope was placed at a very little distance from the præcordial region. In character the murmurs were rubbing. I pointed out at the bedside that the case offered us a perfect example of the to-and-fro sound of Dr. Watson. Moreover, the sounds impressed on all who heard them the idea that they were generated very near to the stethoscope. As the parietes of the lad's thorax were tolerably flexible, a moderate force sufficed to bring the two layers of the pericardium more closely into contact, and so the friction resulting from the passage over each other of the roughened visceral and parietal layers of the pericardium, was increased, and consequently the murmur generated by the friction was intensified. At one time it was supposed (and is so still by some) that murmurs generated in the pericardium could always be intensified by pressure in the young; and, also, that when a murmur, audible over the heart, could be intensified by pressure, absolute proof was obtained that the murmur was generated in the pericardium.

However, we now know that neither of these statements is true; for, Dr. Walshe

has observed one or more cases in which a pericardial murmur was diminished in loudness by pressure, the free play of the surfaces being impeded by the pressure. And the girl Stone, and the boys Perrin and Whiting, afford us indisputable evidence that a murmur may not merely be intensified, but may even be generated at the base of the heart, by pressure. These children are aged respectively 7, 9, and 10; the girl was the subject of chorea, one boy is suffering from enlargement of the spleen, the other from a skin affection; all have well-formed chests, but in all the thoracic walls are very flexible. Moderate force causes recession of the sternum, and of the cartilages of the ribs, and consequently of the parts subjacent.

In reference to these children, and several other cases of a like kind, which I have noted, I wish to impress on you the following facts:—

1. That no murmur was audible when the stethoscope was applied without force to the sternum, or to the cartilages of the ribs.

2. That when a moderate amount of pressure was exerted, through the medium of the stethoscope, on the sternum, over the base of the heart, a systolic murmur was audible.

3. That the loudness of the murmur varied with the degree of the pressure.

4. That pressure on the base of the sternum did not elicit a murmur.

5. That pressure on the sternum, opposite and above the fourth cartilage, and below the first costal cartilage, elicited a murmur.

6. That the healthy sounds of the heart only were to be heard at the second right costal cartilage, whatever the amount of force to which it was subjected.

7. That a moderate degree of pressure on the second left costal cartilage, or on the second left intercostal space, near the sternum, rendered a murmur audible.

Judging, then, from the situations in which the murmur was producible, viz. over the base of the heart and upwards to the first left interspace; the period in the heart's beats which it occupied, viz. the systole: and the manipulation required to elicit it, viz. pressure, I think there can be no doubt—1. That in these cases the murmur was generated in the pulmonary artery. 2. That the murmur was produced by the passage of the blood through a narrow part of the vessel into a wider part. 3. That the direct force exercised on the thoracic parietes, by the stethoscope, was the immediate cause of the local diminution of the calibre of the vessel.

The only observer who has, as far as I know, recorded a case identical with those to which I have just referred, is Dr. Latham. You will find the case in his third Clinical Lecture; it is so admirably told that I must read it to you:—"A little boy, aged 8½ years, high-spirited and vivacious, but thin and out of health, was brought to me under a suspicion of disease of the heart. Its impulse was not felt beyond the apex, but there it was in excess; yet there was no larger space of dulness than natural in the præcordial region. Upon auscultation, however, this remarkable peculiarity was made out; when the ear or the stethoscope rested gently upon the præcordial region, no unnatural sound whatever was heard; but when either the ear or the stethoscope was applied with such force as to cause the ribs to sink a little below their natural level, then a loud bellows murmur sprang up. The space at which it was heard, and not beyond it, was just so far as the mouth of the stethoscope covered, when it was placed upon the cartilage of the third rib as a centre. This case, which occurred to me," continues Dr. Latham," "five years ago, has made me watchful ever since, lest haply I might create the murmur I was in search of; and it is no needless caution where the patient is young, and the frame-work of the chest is yielding. Never indeed, the chest being not deformed, never but in this single instance have I produced a murmur simulating that of valvular disease. But very often, when, over-earnest in what I was about, I have pressed too heavily on the præcordial region, a sort of jarring sound has reached my ear, and brought with it the suspicion of disease; until setting the heart free from the weight and the restraint which I had inadvertently imposed on it, I have at once lost the sound and the apprehension too, which had arisen from my own awkward manœuvring."

Since, however, my attention was directed to the subject by hearing the produced murmur in the girl, Stone, I have found that I have been able to produce a *basic systolic* murmur in a large number of healthy children, and I am satisfied *that Dr. Latham's* caution is highly necessary, viz.,—that when examining a child

you must be careful not to exercise much pressure at the base of the heart, lest you produce a murmur which may cause considerable anxiety in regard to the ultimate fate of your patient. For you will remember that the murmur produced by the weight of your own head on the stethoscope placed over the base of the heart, in the girl Stone, was infinitely louder than you or I ever heard in the same situation from mere anæmia, or spanæmia, as what we lately knew as anæmia is now often called. Had I not detected the cause of the murmur, I should have supposed the child to be the subject of congenital disease of the heart.

In the girl May, lately admitted into Ward 3, because the subject of tapeworm, we found that pretty firm pressure on the thoracic walls over the pulmonary artery modified materially the first sound, and although we could not say that a murmur was produced by the pressure, we could not but admit that so long as the pressure was maintained the first sound was not healthy.

This again confirms the accuracy of Dr. Latham's observations, recorded in the quotations I have read from his lectures.

I have told you that the murmur produced by pressure over the base of the heart, in the cases in the hospital, originated in the pulmonary artery; I must add that I doubt much whether pressure can be exercised over the base of the heart, powerful enough to diminish the calibre of the aorta, and for these reasons:—1. Because of the relative situation of the aorta and pulmonary artery; 2. Because of the comparative thickness of its walls. I am inclined, then, to think, that systolic basic endocardial murmurs produced or intensified by pressure have their origin in the pulmonary artery. So when in doubt as to whether a systolic basic endocardial murmur is generated in the pulmonary artery or aorta, I have derived some assistance in arriving at a correct conclusion from a consideration of the effect produced on it by pressure.

The little boy Perrin affords us an example of a very common condition, viz. one in which the patient can exercise pressure on his own pulmonary artery sufficiently powerful to generate a murmur. So long as this child is inspiring there is no cardiac murmur, but at the termination of expiration there is a loud blowing, systolic murmur; this murmur has its point of greatest intensity at mid-sternum, opposite the third interspace; it is louder at the first left than at the first right intercostal spaces next to the sternum; it is not audible at the apex. These facts show the pulmonary artery to be the seat of the murmur. During forced expiration the anterior surface of the thorax is flattened, the antero-posterior diameter of the thorax is considerably shortened, and so the pulmonary artery is pressed on. This child is remarkably anæmic, there is a very loud venous hum in his neck, and it is difficult to place the stethoscope over his carotid artery without compressing it enough to generate a systolic murmur.

Compression of the pulmonary artery by the patient in expiration, or by the physician with his stethoscope, is a common determining cause of the basic systolic murmur so often heard in anæmia. In anæmia, too, the arterial walls appear to resist pressure less strongly than in health, and this is one of the reasons why it is sometimes almost impossible to place the stethoscope on the carotid artery of an anæmic young woman, without diminishing its calibre at the spot, and so generating a loud murmur.

But the pulmonary artery is sometimes compressed by the descent of the sternum, during expiration, sufficiently to generate a murmur when the patient is not anæmic; I saw a capital example of this a day or two since, in a fine healthy-looking young man. My opinion was asked about him, because, among other ailments, he was supposed to have valvular disease of the heart, indicated by a bruit at the base. On first applying my ear to his chest, I heard no murmur; then I heard a loud blowing sound, and then again I lost it for a little while, my stethoscope remaining all the time at the same spot; viz. over the sternum, opposite the 4th costal cartilage. By examining the case more closely, I found that this gentleman was one of those whose thorax is considerably flattened during deep expiration, that the murmur was only heard at the termination of expiration, and that it was audible at the 2nd left, but not at the 2nd right cartilage; I concluded, therefore, that the murmur was generated in the pulmonary artery when that vessel was compressed by the receding sternum. It may be supposed, that in such cases there is really an organic aortic murmur, and that during inspiration it is inaudible,

in consequence of the advance of the sternum, and the interposition of a little lung between the aorta and the sternum; but it is not so, for this reason, a murmur so loud as is heard in some of these cases would assuredly be heard at the top of the sternum, and at the aortic or second left cartilage, even during the deepest inspiration.

And now, as to the form of the chest in which basic and systolic murmurs are, or can be, generated by pressure. You may remember, that I directed your attention at the early part of the session to two great varieties of the thorax in regard to form, viz. one in which the lateral diameter is considerable, the antero-postero small, and the other in which the antero-posterior diameter is long, the lateral comparatively short; the latter variety includes all forms of pigeon or chicken breast, and among others the rickety thorax. It is in the form of these two varieties of thorax, that these pulmonary artery murmur can be generated by pressure. In the pigeon-breasted thorax, the sternum is placed at a considerable height above the pulmonary artery, and cannot be forced against by the physician or the patient; and I have demonstrated to you, that emphysematous lung fills up the space between the receding sternal ends of the ribs and the prominent sternum in the rickety thorax. I have examined a very, very large number of children with rickety thorax, and other forms of pigeon-breast, but could never modify the cardiac sound; while it is rare to examine a flat flexible thorax, and not be able to produce a basic systolic murmur. The three conditions, then, favouring the production of a murmur by pressure, whether exercised by the physician or patient, over the base of the heart, are:—1. Narrowness of the chest from before backwards. 2. Flexibility of the thoracic parietes. 3. Anæmia. In anæmia, remember, 1st. That the walls of the vessels are more flaccid than in health; 2nd. That the blood is poor in solid constituents, and, therefore, more readily thrown into sound-generating vibrations than is healthy blood.

[In the Lumleian lectures, delivered by Dr. Elliotson in 1830, an instance was mentioned of the temporary occurrence of a loud bellows sound in a case of ascites, which instantly ceased on the removal of the fluid. The only explanation of it which could be given was that the heart was tilted up a little by the pressure of the water, so that the passage of the blood into the aorta was impeded. This was a very peculiar case, and the only one of the kind recorded before one by Dr. Jenner, published a short time ago, which was from ovarian dropsy, and caused in a similar manner. In the same lectures is mentioned a case of severe bronchitis, where there was no bellows murmur while the patient was erect, but which became audible the moment she lay down.]

In anæmia, the morbid sound in the neck may be increased, or even brought on altogether, by pressure with the stethoscope, or by turning the head very much round to the opposite shoulder; as is well known, and as I have done and do continually. I have for several years been in the habit of increasing the morbid sounds of the openings of the heart, by making the patient, whatever his age, expire as forcibly as possible, and refrain from inspiring again as long as possible. The measure is useful in cases of doubtful morbid sounds of the heart; and I adopted it with the view of bringing the heart and the walls of the chest in as great proximity as possible, and that its sounds might more perfectly reach my ear. But Dr. Peter Latham produced a morbid sound by pressing the walls of the chest upon the heart of a child, and Dr. Jenner has done it in many children, the parietes of whose chests are of course yielding, by moderate pressure with the stethoscope on the second left costal cartilage, or on the second left intercostal space, where the pressure would influence, he suggests, the pulmonary artery.

From the time when the production of a morbid cardiac sound by altered position of the heart first occurred in my practice, cases every now and then presented themselves to me in which examination after death showed no organic disease at an opening, nor any morbid condition of the pericardium; and I know many persons, male and female adults, now alive and well, who, some years age, afforded cardiac preternatural sounds, not of friction of the pericardium, and at present afford none; so that, like many others, I have long ceased to regard a preternatural sound in the heart, as alone indicative of a serious condition. In the child, *youth*, and young adult, cases of enlargement and strong action of the heart, with *frictional* sound or sounds, after pericarditis, are often recovered from completely *after a long* period; and I know at this moment many healthy adults, without any-

thing morbid discoverable in their chest, whose condition of heart was frightful to me ten, fifteen, or twenty years ago. Nay, enlargement of the heart in adults not beyond the middle period of life, in whom there never had been signs of pericarditis, but in whom I found a preternatural sound at the base, strong and too frequent action and over too large a space, with dyspnœa, and great œdema of the lower extremities, I have seen recovered from perfectly; and I cannot at this moment detect, and for a length of time have been unable to detect, any sign of disease in them.

Again, I have known, and know, old persons, whose hearts had or have afforded a morbid systolic sound, discovered accidentally at the base of the heart, for many years, with no other symptom, and who had or have no idea of anything wrong in their chests. One gentleman, with a hernia, died rather more than a year ago of intestinal obstruction within a few days of his ninetieth year, in whom I had very long noticed a loud twanging systolic sound at the base of the heart: but, with the exception of his hernia, he enjoyed extraordinarily fine health, walking alone about the streets, and sitting at the bottom of his table at dinner parties like a man of sixty. I first noticed the sound seven years before his death, and how long it had existed I cannot tell.

I have, therefore, long since ceased to regard signs of diseased heart, and especially a mere preternatural sound, even at an opening, as necessarily indicating dangerous or irremediable disease.

I recollect hearing a loud bellows-sound invariably at the systole of a man's heart in St. Thomas's Hospital for a considerable time, that at length I heard at the diastole only: after death, the pericardium and all the openings were healthy, but the left ventricle was greatly dilated. I did not publish the case, because I feared I had been originally mistaken as to the period of the sound, especially as I did not meet with a similar example. But, a year ago, I did meet with another example of this change in the period of a morbid sound of the heart, and I had examined the case attentively and made careful notes. The patient may be still alive.

[This opinion of Dr. Elliotson and Dr. Jenner is further confirmed by a case in the Leeds Infirmary, reported by the estimable and talented house surgeon of that hospital, Mr. HARDWICK, who says—]

About a year and a half ago, a thin woman, aged 26, was admitted into the Leeds Infirmary to be tapped for ovarian dropsy, which had accumulated to a very large extent. She was a special object of attention at the time, on account of a loud systolic bruit which could be heard over the greater part of the chest, and at times even by any one within two or three yards of her bed, so that she used to amuse the patients who lay near her by calling their attention to the noise. She also suffered from palpitation, but from no other symptoms of heart disease. I cannot state positively whether the bruit disappeared entirely after she was tapped, as I have no notes of the case; but I think it did. The patient has been tapped two or three times since, and was in the Infirmary two months ago for the same purpose; the accumulation of fluid was again very large, fifty-six pints being removed, but, neither before nor after the operation, could any abnormal sound be heard within the heart, although I examined her carefully almost every day. The sounds of the heart were more loud, sharp, and distinct than normal, probably owing to the thin state of the parietes of the chest, since there was no evidence of dilatation of the heart.—*Med. Times and Gazette, March* 1, *p.* 203; *April* 5, *p.* 333; *and April* 19, 1856, *p.* 391.

DISEASES OF THE ORGANS OF RESPIRATION.

24.—A CASE OF SEVERE INFLAMMATORY CROUP.

Read before the Western Medical and Surgical Society of London, by Mr. MARTYN.

[This case shows well the beneficial effects of alcoholic stimulants, when freely administered in certain acute inflammatory affections. The child was aged four years.]

It had just recovered from the effects of scarlatina. The croupy symptoms became fully established in the course of twenty-four hours after first being observ-

The success which has attended the operation of tracheotomy, as performed by M. Trousseau, is not so remarkable as some late writers have imagined. Setting aside the supposition that some of these cases were those of spasmodic croup, it seems to me that, if any man should make up his mind to operate moderately early in every case of croup, he would meet with some success, because he would be sure to hit upon certain cases in which the danger arises mainly from arrested respiration. But the principle of indiscriminate operation is always bad practice in the end; and in croup it is most unnecessary, since the symptoms which indicate that the operation cannot possibly succeed are quite clear to any one who can simply read off pathological phenomena to the extent of being able to say whether, in failing states of the body, the cause of failure is located in the circulatory or in the respiratory system.—*Medical Times and Gazette, March* 8, 1856, *p.* 230.

26.—ON THE PATHOLOGY OF HOOPING-COUGH.

By Dr. Grailly Hewitt, Lecturer on Comparative Anatomy and Zoology at St. Mary's Hospital Medical School.

[During an epidemic of hooping-cough, which proved very fatal in the Infirmary and Workhouse of St. Marylebone, Dr. Hewitt had ample opportunities of investigating the morbid appearances in this disease. His views on the production of pulmonary collapse are in accordance with those of Dr. W. T. Gairdner, as the following passage will show.]

The facts I am about to submit go to prove, that the catarrhal inflammation of the bronchial tubes which occurs in hooping-cough is, in fatal cases, attended almost universally with collapse of the lungs. It will then be obvious that an attempt to direct attention to the frequency and importance of this co-existence will not be misplaced, inasmuch as the fact will have considerable influence on the question of the appropriateness of the one or the other plan of treatment, in cases where such a co-existence is to be suspected.

The observations which form the basis of this communication, and the results of which will now be given, have most of them been made at the St. Marylebone Infirmary and Workhouse, where, during this last spring, hooping-cough has been the cause of a considerable mortality. Most of them have been made on fatal cases which have occurred in one or other of these institutions; but some of the cases came under my notice elsewhere. The observations are nineteen in number. The ages of the children who were the subject of them varied from four years to one month, the average being eighteen months. In all, the state of the lungs was carefully noted. The chief lesion found after death was collapse of the lung substance. The following is a statement of the degree to which this pathological condition manifested itself in the different lobes of the two lungs.

In the *right lung*, portions of the upper lobe were found collapsed in six cases, and in four more to a less degree.

The middle lobe was collapsed, wholly or in part, in sixteen cases.

The lower lobe was more or less affected with collapse in eighteen cases.

In the *left lung*, the upper lobe presented the same lesion in fifteen cases, the whole of the anterior tongue-like prolongation being in most of the cases affected.

The lower lobe was collapsed more or less in eighteen cases.

In seven of the cases, the portions collapsed were also congested—in some to a high degree.

The *mucous membrane* of the bronchial tubes was in some cases slightly injected. In almost all, the tubes were filled more or less by a muco-purulent fluid, rather tenacious in consistence, and in the tubes leading to collapsed portions non-aerated.

The air cells in the lobules immediately adjoining the collapsed portions were enlarged, although this enlargement was never found to be great in degree. It was, however, quite obvious with the aid of a lens. The space created by the *collapse of certain* portions, appeared to be filled up by a corresponding increase *in the bulk of* the parts adjoining; thus, in some cases, where the tongue of the

upper left lobe was collapsed, it was tilted downwards and backwards, while its position was occupied by an emphysematous portion of the remainder of the lobe.

True inflammation of the parenchyma of the lung was only seen in four cases. In one, a large portion of the upper right lobe was affected, and tubercle found in the bronchial glands. Hepatization to a slight extent, and confined to one or two lobules scattered here and there in the lung, was met with in one or two other cases. The bronchial glands were, in all cases where the attention was directed to them, enlarged, congested, friable. In three of the cases they were infiltrated with yellow tubercle.

The state of the *pleura* was also observed. In five cases only were there any adhesions found, and in two of these the lungs were tuberculous. In one of these tuberculous cases, both pleural cavities contained a tolerable quantity of effused fluid, but no fluid was found in the other cases. No appreciable change was detected in the vagi nerves, although they were examined in most of the cases.

The *larynx* and *trachea* presented nothing remarkable; they contained generally a certain quantity of puriform fluid. The mucous membrane was never markedly injected.

In all these cases, then, the bronchial tubes were the seat of a catarrhal inflammation, affecting chiefly the smaller tubes, and in many cases the air-cells themselves. An inflammation occupying the smaller air-tubes has been called variously capillary bronchitis, broncho-pneumonia, catarrhal pneumonia, vesicular bronchitis. The two latter terms seem the most appropriate, particularly as applied to the affection of the lungs which occurs in hooping-cough. There would appear to be an intimate connexion between this catarrhal pneumonia and collapse of the lung; the one seems to have an important influence in causing the production of the other. What has been improperly termed lobular pneumonia is, in reality, collapse of the lung, brought about by the catarrhal inflammation of the minute bronchi. It is not pneumonia at all in the true sense of the word. In the hepatization of pneumonia, the lung substance is enlarged, hard, firm, very friable, breaking down into a purulent-looking detritus on pressure; the cut surface is granular, and inflation produces no effect in restoring to the parts affected the natural appearance and physical character. The hepatised portions are non-crepitant, and sink in water, agreeing in these characters with the collapsed portions.

Too much importance can scarcely be attached to this distinction; and there can be no doubt that many cases in which collapse of the lung only existed, have been treated as if pneumonia were present, and therefore inappropriately. An antiphlogistic mode of treatment might suit the one kind of case, but it would tend to hasten a fatal result in the other.

[The following remarks on the secondary conditions of the lungs following collapse are also important:]

Another question of great interest is the secondary effect of collapse of one portion of the lung on other portions not in the same condition. The observations I have made on this subject enable me to state that a secondary effect is produced, and what that effect is I will now go on to specify. As I have before remarked, the size of the air-cells at different situations on the surface of the lungs was examined with the aid of a lens, the result of such examination being to establish the fact that in the lobules immediately adjoining those which were collapsed, the air-cells were decidedly enlarged. The extent of surface which presented this enlargement of the air-cells bore a certain and constant ratio to the amount of lung which was collapsed; thus, when the collapse was slight in amount, the air-cells in the adjoining lobules were little altered, and *vice versâ*. These facts are strongly confirmatory of the opinion of Dr. Gairdner, as to the production of emphysema generally by collapse of the lung. The vacuum which would be formed in the cavity of the thorax by collapse of a portion of its contents, must necessarily be occupied by some solid or gaseous material, and it is obviously the most probable occurrence, that in order that this vacant space may be filled up, the lung substance near it will be further expanded, the air-cells becoming thus dilated, and emphysema produced. According to this theory, emphysema is a *complementary* lesion. Dr. Gairdner is of opinion that emphysema is always produced in this way. This may or may not be the case; my own observations are not sufficiently numerous to enable me to give an opinion. Thus much we

however, be with truth stated, that in those of the foregoing cases in which emphysema was observed, this theory seemed the only adequate explanation of the appearances which presented themselves.—*Edin. Med. Journal, Nov.* 1855, *p.* 447.

27.—ON ASPHYXIA, ITS RATIONALE AND ITS REMEDIES.

By Dr. Marshall Hall, F.R.S., &c.

The term Asphyxia, which ought to be exchanged for Apnœa, designates that condition of the animal system which results from the suspension of respiration.

Respiration involves two processes—the inhalation of oxygen, and the exhalation of carbonic acid.

The remedy for the suspension of respiration is, on every principle of common sense, the restoration of respiration. This view might be considered, irrespective of physiological inquiry and proof, as self-evident; but that proof is amply supplied by physiology.

Of the two functions suspended, it is certain, from physiological inquiry, that the retention of the carbonic acid is by far the more fatal, and that, in a word, asphyxia is the result of carbonic acid retained in the blood, which becomes, in its excess, a blood-poison.

If this view be correct, it is evident that restored respiration is to the blood-poison in asphyxia what the stomach-pump is to poison in the stomach; and that it is *the* special remedy, the *sine quâ non*, in asphyxia.

But this blood-poison is formed with a rapidity proportionate to the circulation, which is, in its turn, proportionate to the temperature. To elevate the temperature, or to accelerate the circulation, *without* having *first* secured the return of respiration, is therefore *not to save*, but in reality *to destroy life!*

Now, let me draw my readers' attention to the *Rules* for treating asphyxia, proposed and practised by the Royal Humane Society. They are as follow:—

"1. Convey the body carefully, with the head and shoulders supported in a raised condition, to the nearest house.

"2. Strip the body, and rub it dry; then wrap it in hot blankets, and then place it in a warm bed in a warm chamber free from smoke.

"3. Wipe and cleanse the mouth and nostrils.

"4. In order to restore the natural warmth of the body,—

Move a heated covered warming-pan over the back and spine.

Put bladders or bottles of hot water, or heated bricks, to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet.

Foment the body with hot flannels.

Rub the body briskly with the hand; do not, however, suspend the use of the other means at the same time; but, if possible, immerse the body in a warm bath at blood heat, or 100 degrees of the thermometer, as this is preferable to the other means for restoring warmth.

"5. Volatile salts or hartshorn to be passed occasionally to and fro under the nostrils.

"6. No more persons to be admitted into the room than is absolutely necessary."

My first remark on these rules for treating asphyxia is, that "to convey the body to the nearest house," is doubly wrong. In the first place, *the loss of time* necessary for this purpose is—*loss of life!* on the contrary, not a moment should be lost; the patient should be treated instantly, on the spot, therefore. In the second place, except in very inclement weather, the exposure of the face and thorax to the breeze is an important auxiliary to the special treatment of asphyxia.

But most of all, the various modes of restoring the temperature of the patient, the warm-bath especially, are objectionable, or more than objectionable; they are at once inappropriate, unphysiological, and deleterious.

If there be a fact well established in physiology, it is that an animal bears the *suspension of* respiration in proportion, not to the warmth, but within physiolo-

gical limits, to the lowness of the temperature, the low limit being about 60° Fahr. A warm bath of 100° Fahr. must be injurious.

All other modes of inducing warmth are also injurious, if they divert the attention from *the one remedy* in asphyxia—artificial respiration,—or otherwise interfere with the measures to be adopted with the object of restoring this lost function.

Such, then, are the views which the scientific physician *must* take in regard to the late rules for treating asphyxia promulgated by the Royal Humane Society.

I now proceed to state the measures by which those rules must be replaced.

I revert to a proposition already made: as asphyxia is the result of suspended respiration, the one remedy for the condition so induced is, self-evidently and experimentally, the restoration of respiration.

But there is an impediment to artificial respiration never before pointed out. It is the obstruction of the glottis or the entrance into the windpipe, in the supine position, by the tongue falling backwards, and carrying with it the epiglottis—an event which can only be effectually remedied by adopting the *prone position*.

In this position the tongue falls forward, drawing with it the epiglottis, and leaving the ingress into the windpipe free.

But even when the *way* is patent, there remains the question, how is respiration to be effected? The syringe or the bellows may not be at hand, and if they were, the violence used by them is apt to *tear* the delicate tissue of the lungs. The mode proposed by Leroy, of compressing the thorax by means of a bandage, and allowing its expansion by the resilience of the costal cartilages, is proved by experiment to be futile, chiefly, no doubt, from its being attempted in the supine position, with the glottis obstructed.

The one effectual mode of proceeding is this: let the patient be placed in the prone position, the head and neck being preserved in their proper place. The tongue will fall forward, and leave the entrance into the windpipe free. But this is not all, the thorax and abdomen will be *compressed* with a force equal to the weight of the body, and *ex*piration will take place. Let the body be now *turned* gently on the side (through rather more than the quarter of a circle), and the pressure on the thorax and abdomen will be removed, and inspiration—effectual *in*spiration, will take place. The expiration and inspiration are augmented by timeously applying and removing alternately pressure on the spine and ribs.

Nothing can be more beautiful than this life-giving—(if life can be given)—this breathing process.

In one series of experiments, twenty cubic inches of air were *ex*pelled on placing a corpse in the prone position, and ten cubic inches more by making pressure on the thorax and ribs, the *same* quantities being *in*haled on removing that pressure, and on rotating the body on its side. But I must give the experiments in detail:—

A subject was laid on the table, and pressure made on the thorax and ribs, so as to imitate the procedure of Leroy. There was no result; a little gurgling was heard in the throat, but *no inspiration* followed. The tongue had fallen backwards, and closed the glottis or aperture into the windpipe! All inspiration was prevented.

Another subject was placed in the *prone* position. The tongue having fallen *forwards*, and the glottis being free, there was the *ex*piration of twenty cubic inches of air, a quantity increased by ten cubic inches more on making pressure along the posterior part of the thorax and on the ribs. On removing this pressure, and turning the body through a quarter of a circle or rather more, on the side, the whole of the thirty cubic inches of air were *in*spired!

These manœuvres being repeated, ample respiration was performed!

Nay, there may be a question whether such considerable acts of respiration may not be too much.

It is to be observed, however, that, in this mode of artificial respiration, *no force* is used; the lung therefore is not injured; and that, as the air in the trachea and bronchial tubes undergoes little or no change in quantity, the whole inspired air passes into the air-cells, where the function of respiration is alone performed.

It deserves to be noticed, that in the beginning of this experiment in the prone position, the head had been allowed to hang over the edge of the table; all respiration was frustrated! *Such is the importance of position.*

Reserving the full exposition of this method of *postural respiration*, this theseopnœa, (from Θεσις, position), for another occasion, I will conclude by reducing these views into the simplest *Rules* for the treatment of asphyxia.

New Rules for the Treatment of Asphyxia.

I. Send with all speed for medical aid, for articles of clothing, blankets, &c.

II. Treat the patient on the spot, in the open air, exposing the face and chest freely to the breeze, except in too cold weather.

I. *To excite Respiration,*

III. Place the patient gently on the face (to allow any fluids to flow from the mouth).

IV. Then raise the patient into the sitting posture, and endeavour to *excite* respiration,

1. By snuff, hartshorn, &c., applied to the nostrils;
2. By irritating the throat by a feather or the finger;
3. By dashing hot and cold water *alternately* on the face and chest.

If there be no success, lose no time, but

II. *To imitate Respiration,*

V. Replace the patient on his face, his arms under his head, that the tongue may fall *forward*, and leave the entrance into the windpipe free, and that any fluids may flow out of the mouth; then

1. Turn the body gradually but completely on the *side, and a little more*, and then again on the face, alternately (to induce *in*spiration and *ex*piration);

2. When replaced, apply pressure along the back and ribs, and then remove it (to induce further *ex*piration and *in*spiration,) and proceed as before;

3. Let these measures be repeated gently, deliberately, but efficiently and perseveringly, *sixteen times* in the minute, *only;*

III. *To induce Circulation and Warmth,*

1. *Continuing* these measures, rub all the limbs and the trunk *upwards* with the warm hands, making *firm pressure* energetically;

2. Replace the wet clothes by such other coverings, &c., as can be procured.

IV. *Omit the warm bath until the respiration be re-established.*

To recapitulate, I observe that—

1. If there be one fact more self-evident than another, it is that artificial respiration is the *sine qua non* in the treatment of asphyxia, apnœa, or suspended respiration.

2. If there be one fact more established in physiology than another, it is that within just limits, a *low* temperature conduces to the protraction of life, in cases of suspended respiration, and that a more elevated temperature destroys life. This is the result of the admirable, the incomparable, work of Edwards.

3. Now the *only* mode of inducing efficient *respiration* artificially, at all times and under all circumstances, by the hands alone, is that of the postural manœuvres described in this paper.

This measure *must* be adopted.

4. The *next* measure is, I have stated, to restore the *circulation* and *warmth* by means of pressure firmly and simultaneously applied *in the course of the veins*, therefore *upwards.*

5. And the measure *not to be adopted*, because it tends to extinguish life, is *the warm bath, without* artificial respiration.

This measure *must* be relinquished.

These conclusions are at once the conclusions of common sense and of physiological experiment. On these views human life may, nay, must, sometimes depend. —*Lancet, April* 12, 1856, *p.* 393.

28.—*On a New Mode of Effecting Artificial Respiration.* By Dr. HERBERT WILLIAMS.—Artificial respiration is our only recourse in many cases of asphyxia, and the only efficient mode of accomplishing it is as here described. It was first proposed by Dr. Marshall Hall, and has lately been practised at St. George's Hospital.

The mouth and one nostril were carefully closed by means of sticking-plaster, to prevent the possibility of air finding its way through them. In the other nostril was inserted a caoutchouc tube, about three feet long, at the end of which was fixed a bent glass tube of the same size, into which was poured a teaspoonful of water.

The operator then took hold of the subject (which was lying in the prone position) by the left shoulder and hip, and gently raised it, until the whole body was resting on the right side. This movement caused the air to enter the glass tube, creating bubbles in the water as it passed on into the lungs; and on the body being slowly replaced on the stomach, the air was freely expelled from the lungs, and caused the same agitation in the water as it made its exit through the glass tube.

Judging from the agitation of the water, the quantity of air which passed into the lungs must have been considerable, and quite sufficient for the purpose of artificial respiration.

The great advantage of inflating the lungs by means of the rotatory movement, or raising the body by the one shoulder and hip, is the readiness with which one person can perform the operation, in the absence of any other assistance.

This experiment appeared to be perfectly satisfactory.

The other method was then tried, by raising the subject by the two shoulders, until the stomach was freed from any pressure, on the table, and then gently lowered down again. This movement produced precisely the same results as the rotatory, but required more strength to perform it.

Dr. Marshall Hall, in commenting on the above experiments, says, that in the *supine* position, the tongue *falls* backwards, and closes the glottis. All *in*spiration is therefore impossible.

In the *prone* position, the tongue *falls* forwards, and leaves the glottis freely patent. *In*spiration is therefore possible.

Respiration is *effected* by placing the patient in the prone position, and turning *on the side* fully and rather more, alternately. In the former position, pressure is made on the thorax and abdomen equal to the weight of the body, and *ex*piration takes place. In the latter, that pressure is removed, and *in*spiration occurs.

These movements being made alternately, gently and equably, *sixteen* times a minute, and no more, respiration is efficiently performed, and this without bellows, syringe, or any apparatus, all of which are not only unnecessary, but, for reasons which cannot now be detailed, dangerous.—*Lancet, March* 1, 1856, *p.* 229.

29.—*On Linear Cauterization of the Throat in Asphyxia.* By M. FAURE.—M. Faure's proposal is founded upon numerous experiments on animals asphyxiated, in a variety of modes, and on one case of asphyxia by charcoal, occurring in a girl. The actual cautery, he observes, has long since been employed in distinguishing real from apparent death, and for the purpose of resuscitation; but it has not succeeded, owing to the absence of proper method and due perseverance. When properly used, however great the danger, as long as even the feeblest respiratory movements continue, it will establish a favourable reaction, and to this end is far superior to all other means. The following are the conclusions arrived at:—1. When the heart has entirely ceased to beat, or when the pulsations are fewer than three in five seconds, death is certain, whatever may be done; but, except in these very extreme cases, cauterization may restore life. 2. Deep and long parallel lines must be traced, by a strongly-heated iron, along the upper and lateral parts of the chest, opposite the four or five first ribs, this being the part of the body that longest retains the faculty of being stimulated. 3. The first effect is a muscular contraction, which is quite local, and without a sign of pain: the ribs then move, the thorax enlarges, and inspiration becomes more ample. Sometimes

more than a minute elapses before any sign of sensibility can be induced, even by the most intense burn. 4. When the general sensibility has become aroused, it is of the highest importance to keep it excited for a long time; and to this end flagellation is the easiest and the most certain means. It must be persisted in for a long time, and the patient must be well watched. 5. Frequently asphyxiated persons die after having been restored; but this must be referred rather to the shock sustained by the economy, in consequence of the suppression of respiration, than to the introduction of any poisonous principle, inasmuch as such death has occurred in persons who have not been exposed to any toxical influence, as in those drowned.—*Med. Times and Gazette, Dec.* 22, 1855, *p.* 628.

30.—PATHOLOGY OF TUBERCLE.

Tubercle appears under the form of grey or yellow tubercle-masses. The nature of these, as we all know, has been much discussed. In form, the two kinds of tubercle resemble each other: roundish granulations, of about the size of millet seeds, isolated or grouped together in irregular nodular masses. *Grey tubercle* is of uniform consistence, toughish or softish, compressible, and of pearly-grey colour. It is composed essentially of nuclei, 1–125 to 1–100 of mill. diam., held together in an adhesive binding medium; besides these there are present, cells containing one or more nuclei, which indicate an endogenous development and growth of the before-mentioned elements. *Yellow tubercle* is of various shades of colour, opaque, friable, and of cheesy lardaceous consistence. It contains a large abundance of fine protein molecules; among which are present the elements of grey tubercle, shrivelled, indented, and wrinkled, and of a yellowish lustre.

In what relation do these kinds of tubercle stand to each? Is yellow tubercle originally distinct from, or a metamorphosed condition of, grey tubercle? To this Rokitansky answers: Grey tubercle is without doubt converted into yellow tubercle, as Laennec taught; certain other abnormal products, not tubercular, may, it is true, undergo the same metamorphosis, but still the metamorphosis is most peculiarly related to that formation which originally appears as grey tubercle. In so far as this metamorphosis occurs at an early period of the disease, and advances rapidly, it might seem as though the tubercle was, in its origin, yellow and opaque.

Tubercle is developed in the following manner:—A clear, or turbid, greyish-red, adhesive synovial-like exudation is poured out into the parenchyma, for example, of the lungs. This is the *albuminous tubercular infiltration* of Laennec. In this exudation spring up at separate points grey granulations, congregated together in little groups; these, at first soft and moist, gradually become condensed and resistent, or the texture in the part corresponding to the infiltration becomes uniformly swollen, and gradually assumes a fine granular structure, representing *tubercular infiltration of the lungs.* Minute investigation shows us, that in this infiltration the elements of tubercle are developed. On serous membranes we find the tubercle deposited as fine, vesicle-like, softish, greyish or opaque, discrete granulations, forming, when very numerous, a continuous nodular-like layer of granulations. These are to be distinguished from tubercle developed in pseudo-membranes. Whether the tubercular elements arise in the exudation as a free blastema, or whether they are developed in the parenchymatous blastema, is uncertain.

Grey tubercle sooner or later is metamorphosed into yellow tubercle; in some rare cases the granulations become obsolete—that is, are converted into hard, horny nodules. The metamorphosis generally commences at the centre of the tubercle, perhaps because there the growth is of most ancient date. The yellow tubercle undergoes further changes. Its solid parts become softened down into a tolerably uniform, creamy, purulent-like fluid, in which are found an immense number of fine granular points, and some scattered elements of yellow tubercle. This is to be distinguished from the thin, whey-like, flocculent fluid, known as tubercular pus. This softening is a further spontaneous degeneration of yellow tubercle, and is different from the mere disintegration of the tubercle mass under the influence of the surrounding effusion; forit commences in the centre even of large masses. *Tubercle has* no vessels proper to it; but the remains of vessels and other elements *of the texture* invaded by the tubercle may be found in the softened mass.

Inflammation plays an important part here, in so far as it occasions an exudation into the parts around the tubercle mass, which exudation serves as a basis for the further regeneration of tubercle. Likewise inflammation supplies the materials which form the fibrous thickenings and capsules around the tubercular cavity or ulceration. The separation of the tubercle-mass from the textures around it, is also often occasioned by inflammation; the elimination of the separated mass produces a cavity or ulceration: tubercular phthisis.

The softened tubercle sometimes undergoes *Cretification*—that is, it is converted into a greasy, fatty, chalky mass, which is gradually hardened into a cretaceous substance.

In its mode of development, tubercle offers important differences. 1. It often arises in a slow and insidious manner, in the form of distinct granulations confined to one portion of an organ; these gradually increase in size and number, destroying the textures they invade; or they suddenly and rapidly increase, as in the following mode of growth. 2. In this case, the tubercular granulations are rapidly and extensively deposited, and are not confined to one organ. The tubercles thus deposited are of uniform size (miliary tubercles), and regularly distributed through the tissues. They are found, in different stages of development, at different parts of the same organ; those of recent growth soft and gelatinous, those of older date firm. The tissues thus invaded are softened and infiltrated with a thick serous effusion. Tubercular disease of this kind appears as an acute disease, with typhoid phenomena: *acute tuberculosis*. It is rarely a primitive form of tubercle. 8. The third form is *infiltration of the tissues;* it appears, as seen in infiltration of the lungs, under the form of a thick, synovial-like fluid (*albuminous infiltration*), which gradually degenerates into a firm, greyish-red, granular, broken down mass, containing portions of tissue within it. The nature of this effusion, the rapid development of the tubercle in its lobular form, and the growth of areolar tissue in it, are facts which favour the opinion of the inflammatory origin of this form of tubercle. This tubercle is generally metamorphosed into yellow tubercle; it runs a rapid and acute course, softening and destroying the textures which it surrounds.

The peculiarities of tubercle indicate that it is an especial anomaly of nutrition, which is frequently associated with a particular organization of the individual. It excludes the co-existence of other diseases. Cancer very rarely co-exists with it and the especial parts attacked are different in the two diseases. Typhus, heart diseases, certain lung diseases also—emphysema, for instance—rarely co-exist with it.

Tubercle attacks nearly every part and organ of the body, and even new growths, but with marked difference in degrees of frequency; the lungs most often, then the intestinal canal, lymphatic glands, larynx, serous membranes, brain, spleen, kidneys, liver, bones and periosteum, uterus, testicles, and spinal-cord. Tubercle very rarely, if ever, affects the salivary glands, the ovaries, the blood-vessels, the œsophagus, and the vagina. Moreover, tubercular disease of the intestines, of the larynx and trachea, of serous membranes, of the spleen and liver, is seldom other than secondary, and therefore of minor import.

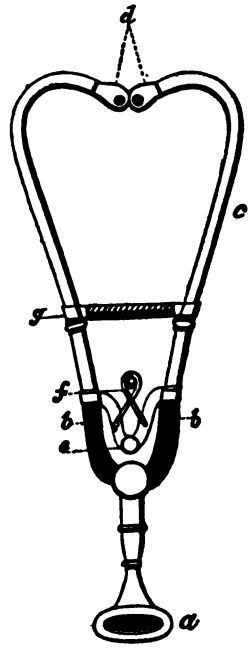
In every organ, there is one particular part especially prone to the attacks of the tubercle; for example, the apex of the lungs, the pia mater about the pons Varolii, the grey substance of the brain, the spongy part of the bones, the lower part of the ileum, &c. The tubercular disease rarely spreads from the larynx into the pharynx. It attacks the old and young, but especially adolescents. It is generally fatal, and destroys life by injuring the functions of organs, through ulceration, marasmus, and destruction of tissues; and when acute, with the symptoms of blood disease. Tubercle may undergo cure by obsolescence, cretification, and elimination; but such cure avails not the patient, if new tubercle is continually deposited. Cure is effected by means of a firm capsular scar.

Such is the account, in a condensed form, given of tubercle by Rokitansky. It is plain and simple.—*British and Foreign Medico-Chirurg. Review, April*, 1856, *p.* 332.

31.—ON A SELF-ADJUSTING DOUBLE STETHOSCOPE.

By Dr. James E. Pollock, Assistant-Physician to the Hospital for Consumption and Diseases of the Chest.

[This is an American invention, and possesses many advantages over others which have been recommended by eminent auscultators.]



The increase of sound to be gained by using both ears at once, while all loud external noise is excluded, is a means of obtaining new information on the exploration of the chest, which has excited the attention of several careful auscultators. Many years ago, Dr. Williams used a double metal tube with two flat ear-pieces, and adapted to the bell of an ordinary stethoscope, which, except for its inconvenience, would fully answer the above indications, and give great increase of conducting power. M. Landouzy, of Paris, in 1850, constructed an instrument having a number of gum-elastic tubes, by means of which several persons could listen at the same time. In 1851, Dr. N. B. Marsh, of Cincinnati, patented a stethoscope with two gum-elastic tubes and a membrane over its objective end, which required both hands to keep it in position. More lately, in this country, Dr. Leared has made a double instrument with gutta-percha tubes.

In January, 1855, Dr. Camman, of New York, had constructed with great care a double self-adjusting instrument, of which the engraving is taken from the *New York Medical Times* for that month. Dr. Coulson, of Castle Donington, Leicestershire, having been favoured by Dr. Camman with one of his instruments, the former gentleman most kindly placed it at my disposal for experimental purposes. The instrument is fourteen inches long; the tubes are of German silver, with a double curve towards the aural extremities terminating in ivory knobs, which when applied should rest closely against the external openings of the ears. The bore is

a, Objective end.
b, Two gum-elastic tubes.
c, Two metallic tubes.
d, Two ivory knobs at aural extremities.
e, Hinge joint.
f, Spiral spring.
g, Elastic moveable spring.

two lines and a half in diameter, and smooth through. Dr. Camman dwells much on the accuracy of the curves, and conceives that the sounds conveyed are thereby increased; but it is doubtful if this be the case. Without these curves the instrument would not be capable of self-adjustment. The elastic band or spring retains the aural ends in contact with the ears, and leaves the hands free.

It will be observed, then, that we have here a very perfect instrument, which conducts the chest sounds to both ears at once, and excludes all ordinary external sounds. The results of many experiments with it prove that it is a great intensifier of sound, acting to the ear the part which a powerful lens performs to the eye. All sounds are magnified many times, and some which were inaudible by the ordinary instrument are revealed to the ear. The healthy respiratory murmur heard through it is a loud blowing, almost like the entrance of air into a smooth cavity, as heard through the single stethoscope. In intensifying, it of course alters the *character* of chest sounds, which, generally speaking, are lowered in *tone* by it. Again, as many magnifying glasses of great power are bad definers, so the ear is apt to be confused by the loudness of the sounds heard, and some practice is therefore necessary to ensure accuracy in estimating the modifications of healthy or morbid respiration.

The dry sounds are more accurately conducted than the moist; a pure friction, as in the early stage of pleuritis or pericarditis, is rendered very intense; and the *dry crepitus* occasionally heard in the early stages of phthisis is greatly developed. The same remark is applicable to the wavy or interrupted inspiration. The

healthy expiratory murmur, which (as heard in the single stethoscope) is in duration, when compared with the inspiration, as 1 to 5, becomes prolonged when conducted by this instrument; and, without a knowledge of this fact, the observer would therefore argue some solidification of the lung as the cause of its increased audibility. This observation will at once illustrate the power of the instrument as a conductor, and the special study of it which is necessary before drawing any inference from its use. The voice sounds are greatly intensified, an ordinary pectoriloquy becoming almost startling from its loudness. The heart's sounds are magnified, but more precision in their conduction is to be gained by the use of the ordinary stethoscope. Morbid cardiac sounds are never difficult to *hear*, though their origin may be occasionally obscure; it is therefore plain that a magnifier of sounds would not assist the diagnosis. Certain low and indistinct murmurs, in aneurisms within the chest, might possibly be revealed by its use, which would be otherwise unheard.

Slight differences in the percussion note are rendered very manifest by applying this instrument to the ears, and holding the bell near the part of the chest percussed, which may be done either by the observer or another person, the self-adjusting power of the stethoscope leaving the hands free. It is obvious that the fœtal heart sounds, and the (so called) "bruit placentaire," in pregnancy, may be heard at a very early period, and that in doubtful cases of fracture a crepitus, undistinguishable by the single stethoscope, would most likely be detected. In applying it to the chest, it is absolutely necessary to remove the dress, as the slightest friction masks all other sounds; its perfect adjustment, so that no air may enter under the edge of the bell, is also requisite.

It is plain, from the above remarks, that some practice is necessary to enable us to profit by the increased powers of this stethoscope, as all the sounds are exaggerated, altered in tone, and therefore unlike those which we at present recognise by the aid of the old instrument. It is also evident that it is not likely to displace the latter in daily use, the sounds in which, duly recognised, are sufficiently accurate, and, above all, so universally known, as, in the judgment of skilful observers, to lead to a satisfactory diagnosis. Nay, further, it is little likely that advances in our knowledge of chest affections are to come through improvements in mechanical devices for measuring or rendering manifest physical alterations in the respiratory organs; but there are various physiological and experimental uses to which such an instrument as this may be applied, and it may also prove a valuable assistance in the investigation of disease. I may add that Mr. Coxeter, of Grafton-street, has, under my directions, constructed with great care some of these instruments.—*Lancet, April* 12, 1856, *p.* 398.

32.—NEW FORM OF STETHOSCOPE.

By Dr. Arthur Leared.

[This kind of instrument, though not so convenient as the one in common use, will be found more useful in certain cases, by rendering the sounds more intense and distinct.—Dr. Leared says:]

Some years since I made many experiments in this direction, and the result of one of them I considered satisfactory. I had a stethoscope made of gutta-percha, having two ear-pieces attached to curved tubes, diverging from, but continuous with, a single tube, having the usual bell-shaped extremity. The distance between the ear-pieces being somewhat less than the breadth of the head, owing to the elasticity of the tubes, the instrument might be termed self-adjusting. The effect of leaving both organs of hearing concentrated by its application is surprising. The breath and heart sounds are several times louder when heard through the double than through the single instrument. A *bruit de soufflet* heard in both ways may be correctly compared with the noises of the common bellows and that of a smith respectively. Provided the double instrument be held steadily, and there be no friction against its sides, the chest sounds do not lose in clearness. It is obvious, also, that some practice in observing with it is requisite. Made in a very flexible manner, the instrument is in some respects more convenient, but in

using it the chest extremity must then be held by the patient. I was induced to send the instrument to the Exhibition of 1851 as a novelty. Of its presence there the official catalogue is a standing record, and it is now deposited somewhere with other articles presented by exhibitors. Instead of publishing it more formally, I hoped that some, from seeing it, might be induced to give a similar instrument a trial, and in the description sent with it I expressed confidence that in certain cases of difficult diagnosis, owing to the lowness of the thoracic sounds, the double stethoscope would be found of considerable use. Not a little surprised, then, was I to observe, in a late number of the *British and Foreign Medical and Chirurgical Review*, under the head of "Progress of Medicine," a notice of a pamphlet that had appeared in America descriptive of a new double self-adjusting stethoscope, the performances of which were further grandiloquently set forth. The notice concluded by stating that as soon as the pamphlet was received, full particulars and an engraving of the instrument would be given in the Review. Being reminded of the matter, I now beg to claim it as having originated with myself.—*Med. Times and Gazette, Nov.* 24, 1855, *p.* 521.

33.—ON CAPILLARY BRONCHITIS AND STRUMOUS PNEUMONIA.

By Dr. Addison, Guy's Hospital.

Some recent cases of capillary bronchitis at Guy's, and of what Dr. Addison, without any attention to pathological refinement, terms "strumous pneumonia," have given this experienced physician several occasions for dilating on the peculiarities of this and similar affections—peculiarities, especially as regards strumous pneumonia, or phthisis, which every year's practice at Guy's, he states, seems to confirm, and which we deem, at present, worthy of noting. In a case recently, which offered all the features of strumous pneumonia, different possibly from what Rokitansky calls bronchial tuberculosis, but which ended fatally, the chest was resonant, the lungs were found after death gorged with air, the air-cells broken down, while the right lung presented "phthisical disease"—in other words, latent tubercles,—for Dr. Addison draws a broad and well-marked line between latent tubercles, which may remain months and years in the lung without creating alarm, and that form of disease too often met with and so incurable, active phthisis, or a more advanced or too often neglected stage of the same pathological condition.

Dr. Addison recently has had reason to doubt also, the value of some of Laennec's doctrines, though he performed miracles for one man. He believes, and impresses it on his class, that Laennec's special physical sign of vomica, or tubercular cavity,—we mean, of course, pectoriloquy,—is entirely fallacious, as the clinical student may meet with vomica and tubercular softening without pectoriloquy, and, again, the converse. Much of the misunderstanding in actual practice might be avoided, in fact, if we could get out of the early errors of Laennec, so complacently adhered to by many, and so confidently translated, and laid down in former years. Dr. Addison states that the experience of any practitioner may be always doubted, if he abruptly asks, "Is there vomica present?"—a far better term is phthisical disease. He finds too often, also, the entire lung one mass of tubercular matter, though no tubercle was suspected. These are the cases where so very much may be done by proper treatment, but which too often, from an ordinary winter cold, capillary bronchitis, or chronic pneumonia, go into incurable consumption. We should be obliged to give dozens of cases which have been treated recently at Guy's Hospital, which our space will not permit, if we were to hsow the data on which Dr. Addison builds his views. We believe the experience of our older physicians, who like him have witnessed a succession of theories on lung diseases and consumption for forty years, as specially valuable when contrasted with the microscopic theories of consumption, and the chemical decompositions of carbon in the blood, so fashionable at present.

It need hardly be observed that there is scarcely a question in the practice of medicine so often asked, or one for which consultations are so eagerly required, as *the existence* of vomica in the lungs. We may have, as might be seen during *the year* at Guy's and other hospitals, a vomica or cavity for pulmonary apoplexy,

or as the result of phlebitic deposit, oftener found, perhaps, in the lungs than liver, though not generally considered so. We may have pectoriloquy, or something like it, from enlarged bronchial tubes; yet in none of these, though no doubt all very grave and serious diseases, have we phthisis, though we have the distinguishing marks and signs laid down by Laennec.

In the patient in the present instance the latent tubercular deposits in the right lung did not cause death, but the capillary bronchitis in the opposite lung. Phthisis, in a word, from innumerable cases, Dr. Addison believes to be the active or acute state or stage of strumous pneumonia, nothing more; and with this idea in his mind, the student and practitioner will do more good for his patient than by trusting to the obscurity of a term which means very little, and which, like everything obscure and ill-defined, has a tendency to be mixed up with another idea, that of death or fatality, or incurability.

Mere tubercles, the result of strumous dyscrasia, may lie dormant for months, as we have already said—nay, for years, if inflammation of an active kind, as capillary bronchitis, be not set up. The following case at Guy's is in point:—

A child, lately under care, is dying very evidently of what was described on the card as gastro-intestinal or gastric fever; the amount and rapid increase of emaciation, in spite of chicken-broth, wine, arrowroot, &c., were most unusual, and led Dr. Addison, in consultation with his colleagues Dr. Barlow and Dr. Owen Rees, to suspect phthisis. On the most careful stethoscopic examination, however, nothing of the kind could be detected; the lungs seemed everywhere healthy; yet at the post-mortem, a day or two after, they were found to present one mass of tuberculous matter lying dormant—chronic or primary tuberculosis this might be called, which we know takes place with great rapidity, and generally with symptoms of fever of the typhus character. No active inflammation had attacked the lungs, or they would have gone into cavities; yet this state of the lung tissue, as impeding the normal formation of healthy blood, had given rise to the emaciation of phthisis, so to speak, without phthisis.

Talking over such matters with some good pathological observers in various hospitals, there seems to be little or no doubt as to the complete identity of scrofulous matter and tubercle. We know in a great measure how scrofula is encouraged and partly checked. It may be only a matter of time, then, to take phthisis out of the list of incurable diseases. Going through the wards of University College Hospital with Dr. Walshe, we find his experience of late agreeing in many points with that of Dr. Addison, chronic pneumonic consolidation appearing to him to differ little, except in terms, from tuberculous infiltration. He is inclined still to agree with Laennec, that grey tubercle differs only slightly from the yellow tubercle, the latter being a more mature form of the former, though other observers doubt this, but believe that grey and yellow tubercle are distinct, though often combined in the same tuberculous mass. Dr. Addison remarks on the tendency to spontaneous consolidation and chalky deposit in some cases of grey tubercle, a very marked case of which was also recently shown his class in the post-mortem theatre at Guy's. This grey cicatrization or shrinking up, like healthy fibrine, giving rise to obsolescence, is perhaps the most favourable termination of such cases we have yet arrived at. In a post-mortem we attended this month with Dr. Todd and hisclass, a very large cretified mass was picked out of the body of the lung, the greater part of which was filled with what Dr. Todd conceived to be concrete pus and tubercle, the result of strumous phlebitis. The yellow or advanced stage of tubercle as contrasted with grey, has a tendency to soften and give rise to vomica, and these honeycombed appearances of the lungs are familiar to every one accustomed to necroscopic inquiries. A very practical point is dwelt upon by all these physicians, and is the result of hospital experience, that if we can prevent inflammation and improve the original cachectic condition of the blood, more especially where we have a tendency to softening, we may add several years to patients' lives. Hence the value of cod-liver oil, counter-irritants, as turpentine and acetic acid, to the chest, the mild air of Rome or Madeira for those who can afford it early but not late in the disease. It is remarked that tubercular deposit is essentially formed in vascular parts on the outside of vessels, while cartilaginous parts, ligaments, and internally, the pancreas and ovaries, for some reason are free from it. Dr. Jenner tells us he has seen it in the pancreas, but this is exceedingly exceptional.

Where doubts exist as to the presence of tubercle in patients, several facts observed in hospitals seem to strengthen those doubts. Though we may not have tubercle in some organs, as the ovary or pancreas, we may have cancer in such parts. One morbid state of the blood seems to exclude the other. The state of the blood which is most favourable to banish tubercle or consumption from the system is a highly venous condition, tubercle being now very generally thought to be a deposit of a fibrinous character, not unlike what takes place in aneurismal swellings. Indeed, Rokitansky believes the exhaustion of the fibrinous constituent of the blood in the latter in some measure also prevents tubercular deposit. These views, corroborated every month in our larger hospitals, are exceedingly interesting, and hold out hopes, not dim or discouraging, of our one day being able to check or cure the disease. Cystic growths of any kind are said to be never associated with tubercle; pregnancy also is believed in some measure to check its growth, it is thought, by impeding respiration, and causing a venous and hyperinotic condition of the blood. In children tubercle affects the lymphatic glands and spleen, more often than the lungs, and next the brain. This proclivity to the deposit in different organs seems, however, to vary in different climates and countries. Sufferers from miasmatic influences, such as attend goitre, ague, typhus, or the exanthemata, are not in general at the same time attacked with tubercular deposit, though any of these may lay the groundwork of a subsequent cachectic state of the blood favourable to its production. All these points are well laid down at the bed-side of several patients in various hospitals at present.

It is believed that there is a remote, but unmistakable, analogy between the strumous matter infiltrated into the lungs in tubercular deposit, and that described, for instance, by Sir B. Brodie, in non-vascular parts like the ligaments and cartilages of joints, and so familiar in surgical wards in cases of excision of joints. Dr. Williams describes a form of pneumonia like that to which Dr. Addison more specifically calls attention. He describes the lung as like a piece of oolite, and believes consumption may originate in this, without any distinct tuberculous crasis or condition of the blood. There is very little doubt that this condition of the blood is more of a negative than a positive character, and more easily understood from its effects than from any well-marked chemical or microscopic peculiarity.

In cases where we have not phthisical disease as the result of bad inflammation of the lungs, we have very often, as in another case recently in Guy's, a series of evils radiating, as it were, from bronchitis. We have not here the phthisical tendency, and we get then dropsy.

J. M——, a woman aged forty-five, at present under treatment for dropsy. The starting point of her illness seemed to be an attack of bronchitis, consequent on the cessation of the menses. This was speedily followed by mitral disease of the heart, and dropsy. Mitral disease throws back the blood into the left auricle and lungs, congestion in the lungs induces regurgitation into the hepatic veins, with distension of the liver, and the lower extremities then swell. Dr. Addison lays very marked emphasis on the pulse in such cases. In phthisical patients, it is quick and small; in mitral disease it is irregular and small, so as almost to be pathognomic of this condition, as contrasted with aortic disease; while in the latter, with even the most marked and most extensive heart disease, the pulse is undisturbed. These three points, if properly kept in mind by students, would, he thinks, save them an infinity of useless toil in looking for diseases which do not exist, and in many other instances serve as a sort of key-note to the entire history of cases, and direct attention at once to the seat of the malady, mitral disease, if the student can so educate his ear as to distinguish a *bruit* from a rub or *frottement*, being the starting-point of many liver and dropsical affections, complicated with bronchitis, for the reasons just stated, and strumous pneumonia the essence of phthisical disease or consumption.—*Lancet*, *Oct.* 20, 1855, *p.* 359.

34.—ON THE TREATMENT OF CONSOLIDATED LUNGS FROM PNEUMONIA.

By Dr. Todd, King's College Hospital.

One of the most interesting features we have recently noticed in Dr. Todd's practice at King's College Hospital is a plan of treating solidified lungs and strumous pneumonia by turpentine—a mode not new possibly, but eminently valuable, and one in which Dr. Todd seems to gain greater confidence every session. If we dwell on minor points of this character, it is because we see such cases too often overlooked as they present themselves in the out-patients' department of hospitals, and because this medicine has been the secret of many reputed cures of consumption amongst practitioners outside of the profession.

J. B., aged 21, was admitted into King's College Hospital, October 2nd, suffering under various symptoms of chest disease, the result of a severe attack of pneumonia. Dr. Todd pointed out to his class that the entire lung of one side was completely solidified. This lung had, in all probability, gone through the three stages of pneumonia so familiar in practice, but often so very unmanageable in their results, the first and second stages of pneumonic inflammation usually merging into one another, and leaving the lung quite solid.

The first, or congestive stage, is easily cured when detected early. The second stage, in which these congested vessels relieve themselves by fibrinous exudation into the lung, and slight hemorrhage, as shown in the characteristic rust-coloured expectoration, is also very curable. It is not very well named, perhaps, as hepatization, in which the lung is sprinkled sometimes with pinky granulations, and which Bayle and others look upon as the first stage of tubercular disease. Dr. Todd also described the exudation into the parts, with its granular blastema blood-corpuscles and exudation-cells, the latter, perhaps, traceable from the state of granular corpuscles to that consolidated stage where we now meet it, or the third stage of this disease—that of grey hepatization, with its various mottlings or spotting of the lung. A purulent fluid sometimes exudes, yet this is not essentially a state of suppuration, though very nearly allied to it; it is also different from tubercle, though in many cases next door to it,—the chief practical point, to Dr. Todd, being, that the consolidation of pneumonia does not necessarily destroy the vesicular structure of the lung, no more than effusion into the iris, in iritis, removable by mercury, destroys the structure of that delicate part; the inflammatory effusion, in pneumonia, occurring almost universally through the lung-tissue, as well as *into* the air-cells and inter-vesicular tissue. In a very advanced stage of pneumonia, it is true, we may have pulmonary abscess. This was evidently not the case in the present instance. The treatment adopted by Dr. Todd, and which he finds most effectual, was the following:—Wine, six ounces, daily; a draught every third hour, composed of julep of acetate of ammonia, with aromatic spirits of ammonia in excess; and strong turpentine stupes, carefully applied, every night and morning, over the back of the chest and site of the consolidated lung. Diet moderately stimulating.

Oct. 4th. On seeing this patient two days after we found he had already begun to improve; the lung, previously quite dead as far as respiratory murmur was concerned, began to give signs of healthy vesicular murmur. The right lung, as will have been observed, is most usually that affected. Dr. Todd has great faith in the stimulant action of turpentine—a remedy not often used, but which in this and numerous other cases has proved almost specific in its action. In phthisical cases also it may be used combined with strong acetic acid, when its action becomes even still more beneficial.

25th. This man is quite well.—*Lancet, Oct.* 20, 1855, *p.* 360.

35.—ON EMPYEMA, AND THE DANGER OF PARACENTESIS.

By Dr. Addison, Guy's Hospital.

[The operation of paracentesis thoracis has lately become very common, especially in continental hospitals. Dr. Addison, however, as the result of very extensive

experience in such cases, is decidedly against it, though in his early years he was one of its warmest advocates. The operation may succeed very satisfactorily at the time, but this tells little for the ultimate result. The case under notice has been tapped two or three times previously, with temporary relief, but was again admitted into hospital for the same disease. The enlargement of the side was very well marked. The operation was again performed, under the direction of Mr. Cock, when six pints of fluid were drawn off. The operation succeeded very well in emptying the chest, and no accidental complication was detected at the time, but the man died soon afterwards from exhaustion and unavoidable hemorrhage into the chest, from some small intercostal branch having been wounded.]

Dr. Addison illustrated the case to his class in the deadhouse, with reference to one or two others which had recently come under his notice. He was sent for to the country, to see a young man in what is called fever; he lost caste, he said, in the neighbourhood, as he at once said it was not fever, but marked pleuritic effusion, quite unsuspected by the surgeon in attendance. He was rather afraid to mention the word trocar, or paracentesis would have been tried. There was no time to be lost, so he ordered large blisters over the chest, mild diuretics, composed of digitalis and squills, with other alteratives. The young man got perfectly well. Dr. Addison now believes, from the numerous cases seen every year at Guy's, that paracentesis thoracis is one of the worst and most deceiving operations in general practice. A serous cavity, he thinks, is almost invariably changed into a cavity pouring out purulent matter by the first operation, and the thick, leather-like false membranes lining the pleura, soon make the operation one of very great difficulty and danger. Nature, herself, if assisted by proper remedies, as those already indicated, will often remove serous effusions from the pleura; but if once interfered with by instrumental assistance, the amount of pus separated from the system is almost incredible, and beyond her power to get rid of. Cases are mentioned of twelve and fourteen pints of purulent matter drawn from the chest, but its production is very possibly due to the first opening made in the pleura. This young man continues well; but it would be very difficult to say how many of those subsequent changes of empyema he would now have undergone, if paracentesis had been employed. Even hemorrhage into the pleura, when not at all suspected, as in the hospital case now under consideration, may do serious and fatal mischief. During the post-mortem examination, Dr. Addison drew the attention of his class to the roughened and thickened condition of the adhesions lining the pleura, those being not at all unlike softened leather or half-boiled tripe. This was also a great obstacle to the right performance of the operation of paracentesis of the chest, an obstacle of the most serious import sometimes in private practice.

Dr. Addison further related a case in which he had been called to see a gentleman whose pleura was full of fluid; it was at a time that, guided more, perhaps, by the fancies of new books than by experience, he was led to believe paracentesis a good operation for lessening dyspnœa and relieving the most urgent symptoms of extensive effusion into the pleura. The trocar and canula were boldly pushed into the chest; but nothing followed. It was then decided in consultation that the contents of the pleura were "too solid" to come out, and nothing more was done. The patient died some time afterwards, the effusion and dulness having remained still unchanged, and on the post-mortem table the same operator tried the operation again, but it was of no use. The chest was then opened, and it was found to contain some quarts of fluid, but the leather or tripe-like exudations inside the ribs were found to have closed up the canula, and pushed themselves before it like a valve. Even the lung may be so bound down by these thick membranes as not to be able to expand again. The dangers of the operation are to be considered of such a serious nature that they are by all means to be avoided. —*Lancet*, *Nov.* 17, 1855, *p.* 469.

86.—ON THE EFFICACY OF SMALL DOSES OF MORPHIA IN CERTAIN CHEST DISEASES.

By Dr. Edward Smith. (Read before the Medical Society of London.)

The dose referred to by the author was from the sixty-fourth to the twenty-fourth of a grain for an infant or young child, and from the twentieth to the twelfth of a grain for an adult, repeated from three to six times in the twenty-four hours. The principle involved was the removal of excessive cough, in those cases in which the cough resulted from nervous irritability of the structures of the air-passages, and thereby to prevent various ill effects which would follow from its continuance. He did not regard the cough as a symptom merely, but as the result of irritation, and it was by the removal of the irritation that the cough was to be prevented. He showed that the effect of minute and often-repeated doses of morphia was far more efficacious than occasional and larger doses, and that the sensorium remained quite unaffected, and the bowels nearly so, under its influence, and therefore that no disturbance to the general system was produced by its administration. The author selected three diseases in illustration of the merits of the remedy, viz. hooping cough, the ordinary and spasmodic form of chronic bronchitis, and phthisis. Hooping cough he regarded as essentially a disease of the nervous system, quite apart from inflammation, and considered the principle of treatment to be the removal of the spasm, so that the cough might be reduced to the harmless state of common cough. He believed the secretion to be chiefly due to the violence of the cough, and consequently that the aim should not be to increase the secretion by expectorants, but to stop the cough, and allow the secretion to cease. He was also of opinion that the congestion of the lungs in more advanced cases, which often leads to other complications, is chiefly due to the spasmodic cough. Thus he inferred that the prevention of the cough was in fact the prevention of all serious and fatal complications. The treatment he recommended was first to remove all sources of irritation, to give nutritive food in small quantities and very frequently, to expose the patient to cool, pure air, and in general to place it in the best sanitary conditions, and then to administer the morphia. The system adopted in giving the morphia was to begin with a very small dose, (say the sixty-fourth of a grain to an infant four months old) and, if need be, to rapidly increase it until the slightest drowsiness was perceptible, and then to regard that effect as the measure of the dose, and to continue the dose and effect until the spasm subsided. He particularly insisted upon the fact that any dose less than sufficient to affect the sensorium in the slightest degree was insufficient for the immediate cure of the disease, and therefore that the art in the administration was to produce and maintain that effect in the quickest way, and with the smallest dose. After giving the sixty-fourth of a grain for three or four doses without any drowsiness, he would then increase it to the forty-eighth of a grain for three or four more doses, and again, if need be, to the thirty-eighth and thirty-second of a grain until the slightest drowsiness appeared. Thus the proper dose would soon be ascertained, and within one or two days the spasm would be materially lessened. He stated that within four and commonly within ten days he had cured severe cases so far as to reduce the spasmodic to the common cough, and to prevent the recurrence of any complication. The points he especially urged were, the rapid increase of the dose, to produce the desired effect, and the careful maintenance of the effect by regulating the dose. He insisted upon the necessity of using a graduated measure in the administration of the remedy.

Chronic Bronchitis.—The attacks of this disease, as commonly seen in the *habitués* of hospitals, he believed not to be inflammatory but nervous or spasmodic, both in the cough and in the dyspnœa, and also even in the sense of constriction of the chest; and that the aim should not be to increase the secretion, but simply and purely to remove the nervous condition on which the cough, secretion, dyspnœa, and tightness depended. The cough he believed to be much more than needful to remove detached phlegm, and by its continuance to excite the secretion, and he inferred that when relief was obtained with the increase of secretion, the former was not due to the latter, but both resulted from exhaustion of the nervous irritability by lapse of time. He therefore commonly banished expectorants, and administered small doses of morphia. The dose was usually the

sixteenth of a grain, repeated three or four times a day. Very speedily the cough was relieved, and then the dyspnœa, and at the same time or subsequently the sense of tightness. He maintained that the same remedy which first relieved the cough only would, by continuance or increase, relieve the dyspnœa also. As a preliminary step all sources of irritation were attended to, especially the liver, stomach, and bowels. The croton oil liniment was efficacious only on the principle laid down by the author, and not upon the relief of any supposed inflammatory action.

Phthisis.—The exhibition of small doses of morphia in phthisis was not with a view to cure that disease, but to lessen or prevent the occurrence of certain important complications, which the author believed to be in great part due to the cough; such were hemoptysis, congestion or inflammatory action, vomiting after food, increase of night perspiration, disturbance of sleep, and the increase of the general irritability of the system. He was decidedly of opinion, that in all stages of the disease the cough is commonly greater than is required upon the principles of relieving the system, and therefore, and because it leads to further evils, it ought to be arrested. He especially referred to two periods. 1st. In the early stage, when there is scarcely any secretion, and when the patient voluntarily adds to the cough, to remove a little phlegm, which he believes to be its cause. He considered it essential to disabuse the patient's mind of this error, and by that means, and by the aid of morphia, to arrest the cough. 2nd. He had ascertained that the vomiting of the food after meals was not usually due to disorder of the digestive organs, but to cough accompanying an irritable state of the general system, and a state of repletion of the stomach, and he had commonly prevented it by reducing the quantity of food at each meal, (giving it more frequently,) and by administering the sixteenth of a grain of morphia immediately before or after a meal, as well as at the usual intervals during the day. A more tranquil sleep and less severe night-sweats resulted from the small dose of morphia repeated once or twice in the night than when one large dose was given.

In some of the above conditions the author considered the cough to have the importance not merely of a symptom but of a substantive disease, and as such to require especial attention in the treatment; but as it was oftentimes associated with constitutional ailments, he frequently combined the morphia with vegetable bitters, and with the sesquichloride of iron.

He preferred morphia to other narcotics because its strength is more uniform than that of vegetable extracts, and more permanent than that of hydrocyanic acid; and upon the whole it was as easily capable of minute subdivision and increase in its dose, and was less dangerous in its administration.—*Lancet, Jan.* 26, 1856, *p.* 96.

37.—*Linctus for Chronic Cough.*—The following is the formula for the linctus in common use in St. Bartholomew's Hospital :—

R. Conf. rosæ caninæ ʒ ij.; tragacanth. pulv. ʒ i.; syrupi papaveris ʒ vj.; aceti scillæ ʒ vi.; acidi acetici ♏ xx.; aquæ ferventis ʒ vj. Misce. Dosis ʒ i. ad ʒ iij.

A less expensive preparation is used for the same purpose in very large quantities at the London Hospital, under the name of Lohoch :—

R. Sacchari fæcis ℔ xxviij.; ol. olivæ ʒ viij.; farinæ tritici ℔ iv.; tinct. opii, aceti scillæ, ää ʒ viij. Misce. Dosis ʒ i. ad. ʒ iij.

There are many forms of chronic cough, both in children and in adults, which are treated much more successfully, and far more agreeably to the patient, by the use of preparations of this kind than by the commonly-prescribed "cough-mixtures."—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

38.—*On the Hourly Pulsation and Respiration in Health.* By Dr. Edward Smith, Assistant Physician to the Hospital for Consumption.—[The following *deductions* were founded upon experiments upon several individuals of different *ages, and* continued night and day for seventy-two consecutive hours. The rates

were ascertained in the recumbent position, due attention being given to avoid all sources of error.]

The respiration is a most varying function, and especially in children, as is proved by the process of counting, and inferred by its subordination to vocal efforts, bodily exertions, emotions, and eating. The rate of pulsation in like manner varies greatly, but the ratio of the two functions is rather influenced by respiration than pulsation. While the varying ratio implies that neither function is dependent on its rate upon the other alone, it is evident that the circulation is greatly controlled by the respiration, and especially in children and sensitive people. This is proved by the immediate effect of yawning, sighing, shouting, and other momentary emotional respiratory efforts, and by the effect of mastication and deglutition. The young have less firmness of resistance to adverse influences, as is proved by the facts that the ratio of the two functions is the least in them, and is, at the same time, the most variable. Vital actions are at their maximum in the day, and their minimum in the night; and the action of the one and the negation of the other may be in excess or defect, and need regulation. Thus the action in the day may be in excess from great sun-light, and from too much and too often repeated food; or it may be variable by long intervals between meals; while the negation of the night would be too great if the food taken in day had been in defect, or daylight had been absent. So the former may be in defect from absence of light, food, and wakefulness, and the latter in excess from the presence of these influences. Again, it is evident from the negation of the night, that night labour, whether it be study, bodily work, travelling, or marching, must be performed when the system is the least able to bear it, and consequently when it will be less efficiently accomplished, or performed with more wear of the system. Sleep is accompanied by a much lower state of the functions in the night than can be obtained during the day. Hence day sleep is less beneficial than night sleep; and, as the lowest state of the functions is not attained till the second or third hour of sleep, early retiring to rest obtains better sleep than rest sought in the early morning, when the rate of both functions is increasing. The system becomes charged with material as the meals are repeated during the day; hence with frequent meals, Nature calls for a less quantity and less stimulating and enduring quality of food in the latter part of the day. If no food be taken till the evening, the effect of that meal is inordinate. The absence of food in the night and the greater effect of the breakfast, added to the rapidity with which the effect of that meal passes away, imply that the breakfast should be a good meal, and be followed by another within three or four hours. The duration of the effect of the dinner is due to the remaining influence of the preceding meal, as well as to the quality of the dinner food, and implies that a considerable time should elapse before another meal. In medical practice, we may decrease pulsation by darkness, day fasting, and the lying posture, and the food may be given in the evening, night, or early morning. We may increase pulsation by light, food, and the standing or sitting postures. An absolutely even rate is not attainable; but a low and tolerably uniform rate results from long unbroken fasting, and from the influence of night; and a high and tolerably uniform rate, from frequent moderate meals leisurely eaten. Animal food not only increases but maintains, for a longer period, the rate of both functions. The rate of both functions may be regarded in practice as identical from nine a.m. to nine p.m., if food be taken frequently and very moderately; but there is a great difference between the day and the night rate. A rising or rapid pulse after nine p.m. is unnatural, but an increasing rate after three, four, or five a.m., is natural.—*Med. Times and Gazette, Jan.* 19, 1856, *p.* 71.

DISEASES OF THE ORGANS OF DIGESTION.

39.—CASE OF CANCER OF THE ŒSOPHAGUS.

By Dr. Farre, St. Bartholomew's Hospital.

The following case, which terminated fatally, at St. Bartholomew's, is deserving to be placed on record, as a well-marked instance of infiltrated scirrhus of the

œsophagus, arising suddenly, without assignable cause, yet suspected by Dr. Farre before the death of the patient.

G. K., aged 55, a plasterer by trade, was admitted into St. Bartholomew's, on the 19th of September, with symptoms of general ill health, and complaining more particularly of excessive dysphagia, or inability to swallow. He stated that up to five months ago he was quite well; he might have been taken, indeed, as a model of good health; "he never knew what a day's sickness was," and would now be quite well, but that he was starved on account of his loss of food caused by the excessive pain in swallowing. Scattered over his skin were several raised molluscous-looking spots, which first aroused the suspicion of Dr. Farre and Mr. Lloyd that the disease was of a cancerous kind. A probang was passed into the œsophagus, but was stopped by a very evident narrowing of the channel, and the use of the instrument was followed by hemorrhage, so that it did not seem advisable to repeat the operation. The patient had the usual nutritious food prescribed, with milk and mild demulcents, but after much suffering gradually sank on the 25th of last month. The post-mortem examination, carefully conducted by Mr. Callender, was particularly interesting. The friends of the deceased were extremely anxious for a full examination, as they could not understand the suddenness of the illness; the man's son attended the necropsy. The lower third of the œsophagus, as it joins the cardiac orifice of the stomach, was almost entirely obliterated by a mass of infiltrated scirrhus or cancerous disease. The lungs, though the man was stated to have been previously in perfect health, were filled at several points with healed or obsolescent tubercle; the liver also was filled with a similar deposit. The small intestines, at one or two spots, were also obliterated by cancerous growths, leaving the canal of the gut not much larger in calibre than a common quill.

This form of disease in the œsophagus is somewhat rare. A similar case occurred at St. Bartholomew's in 1851. The disease, singular to say, began with pain, of a severe kind, about the shoulder and lumbar region, ending in the most excessive difficulty in swallowing, which was found after death to depend on cancerous degeneration of the œsophagus. A case of marked encephaloid is noticed by Dr. Handfield Jones, which had proceeded to a considerable extent without producing any symptoms; as well as another instance of a man who had died of peritonitis, in which, at the post-mortem examination, a thick mass of encephaloid, ulcerated on the surface, just above the cardiac orifice, was accidentally found, extending for an inch and a half. In 'The Lancet' (1832) are two very interesting cases of disease of the œsophagus, in which the affection had assumed the character of softening subsequently dwelt upon by Rokitansky. In "Guy's Hospital Reports," also (vol. vii. p. 141), a case of typhus is given in which the œsophagus was found entirely softened. These cases, and some few others which might be cited, corroborate the suddenness with which the results of malignant disease make their appearance in this part, which is, as a general rule, free from any other morbid affections. It is, perhaps, possible that in the patient attended by Dr. Farre, the cancerous deposit had for some time remained in a quiescent state; but the ultimate closing up of the canal, and consequent dysphagia, had aroused the sick's man attention, when, unfortunately, all surgical or medical aid was unavailing.—*Lancet, Nov.* 10, 1855, *p.* 439.

40.—ON SUB-ACUTE GASTRITIS.

By Dr. Lees, Physician to the Meath Hospital, Lecturer on Practice of Medicine.

[Though acute idiopathic gastritis is very rare, a sub-acute form is very common in those who take spirituous liquors to excess. Patients complain of heat and fulness at the stomach, which is tender to the touch, thirst, nausea, flatulence, acid eructations, retchings, vomitings, &c. The pulse is quickened, strength prostrated, tongue red at the edges, bowels costive, skin dry, urine scanty and high-coloured.]

The treatment of the milder forms of sub-acute gastritis is simple, for, as they are mostly caused by errors of regimen, a mild farinaceous and abstemious diet will suffice for their removal; but in some constitutions, particularly if neglected, *the complaint*, though mild at first, becomes very serious, and often tedious, requir*ing great skill*, care and judgment, for there is no disease in which you are more

liable to lose the confidence of your patients or their friends, unless you explain the nature of the case, its uncertain duration, its liability to relapse, and its occasionally fatal termination. The late Dr. Cheyne, one of our most successful practical physicians, remarked, with reference to this disease, that "long and watchful practice confers no greater boon than in enabling a physician to be inactive without loss of character, or the danger of being supplanted by those who think it necessary to practise, not only for the benefit of their patients, but on the credulity of their friends or attendants." The chief points in the treatment are: first, to allay inflammation by the application of leeches, according to the urgency of the case, the age and previous condition of the patient; second, not to irritate the mucous membrane by a farrago of medicines, but content yourself by treating the most prominent symptoms. Two grains of mercury with chalk, or magnesia, at night, or the same quantity of blue pill, combined with a grain of extract of hyoscyamus or lactucarium, given for the first eight or ten nights, will allay irritation and promote healthy secretion; if there is much irritability of stomach, give one or two drops of dilute hydrocyanic acid with three grains of bicarbonate of soda in an ounce of distilled water, every two or three hours; if the skin is very dry, give two grains of nitre in an ounce of water or almond emulsion every two or three hours, and allow small quantities of mild fluids to be drunk at a time, either barley water, or gum and water, or equal parts of milk and soda water or seltzer. Be very cautious of purgatives, as a very small dose of medicine often exerts a powerful effect, so, if an aperient is required, give phosphate of soda in weak chicken broth, or a solution of magnesia or soda with lemon-juice; but it is safer to regulate the bowels by enemata. If the discharge from the bowels be very frequent, or serous, or mucous, you must check them by small enemata of starch, one to three ounces, with from two to fifteen drops of laudanum, according to the age of the patient; if the evacuations be very offensive or pungent, have some peat charcoal always left in the utensil, or you may give charcoal prepared from wood (of the poplar if possible), very finely powdered in doses of ten or twenty grains. After five or six days you may allow them chicken broth or beef tea, and if the bowels are regular, and there is a tendency to perspiration, the mineral acids will now prove beneficial—twenty minims of nitric acid, with thirty of muriatic, in eight ounces of water; an ounce every three or four hours will be agreeable to the palate, tend to quench thirst, remove the clammy, disagreeable taste from the mouth, and allay morbid irritability. When there is great tendency to constipation, I have found small doses of sulphate of quinine, with sulphate of potash, and dilute sulphuric acid, to agree very well; wine will often be requisite, but you must commence its use carefully.

A table-spoonful of sherry, or claret, or some of the Rhenish wines, diluted with water, and given every three or four hours, will be sufficient to commence with; but no point of practice requires greater consideration than the giving or withdrawing wine in this form of disease, for there is a tendency to debility and prostration of the powers of life at all periods of inflammation of the gastro-intestinal system, and this condition will be aggravated by wine given at an early period; but in the advanced stages, when the pulse is small, irregular, or unequal, when the impulse of the heart is feeble and its sounds indistinct, when the circulation in the extremities is languid, you may then give wine freely, or even whiskey or brandy; a tea-spoonful in a cup of warm milk, or arrow-root, or sago, every hour, according to circumstances, may be given with advantage. If there be much tympanitis, it is best treated, in the early stages, by turpentine fomentations and enemata; but in the latter stages, turpentine may be given internally in half-drachm doses; and if there be much febrile irritability at night, with want of sleep, they will derive much benefit by having the legs and feet sponged with tepid water and vinegar, or dilute nitro-muriatic acid.

With regard to the diet: in all forms of sub-acute gastritis, it is necessary, in regulating it, to have reference to the stage and degree of the inflammation and the state of the system. You should remember that the stomach, though in a state of inflammation, yet is the viscus through which the system is nourished, so that though it might be desirable to restrict the diet rigidly if we only regard this organ, yet we must bear in mind that the whole system may suffer; and the stomach itself be injured by extreme abstinence, when the system is requiring support. Such are the sympathies of this viscus with the other parts of the system, that the suf-

fering caused by deficient nutriment in remote parts, is reflected upon it with especial force, and the stomach may thus be inflamed though the body is sinking from inanition, as was proved in the experiments of Andral and Gavarret.

The *symptoms* of chronic gastritis in the early stage are often variable, obscure, and of such a character as to deceive the patient, for drowsiness and headache after meals may be the chief symptom, but in well marked cases there is acidity, flatulence, a sense of oppression and distension of the stomach after food, particularly of a solid kind, and there is often severe pain felt immediately on taking any kind of food, which may continue during the process of digestion or till vomiting takes place. Pain is very variable, both as to its seat and character; it is generally aggravated by warm drinks, and may be referred to the xiphoid cartilage, to the right or left hypochondrium, to the back, opposite the stomach, or even to the left shoulder; sometimes it is a dull heavy pain, or rather a sense of constriction at the epigastrium or behind the sternum, it may arise spontaneously, or only be caused by pressure, by the taking of food, or occur during the act of digestion. Some patients take a disgust to food, others dread it from the feeling of pain it excites.

There is seldom thirst during digestion, and it is during this period that vomiting generally takes place of very sour, half-digested food, from which they experience great relief. In some cases, particularly in persons of intemperate habits, there occurs a profuse discharge of dark blood from the stomach, probably owing to a relaxed though congested state of the vessels. The tongue may be pale and flabby, coated with a white fur, or with thick viscid mucus, and indented with the teeth, or it may be smooth, glazed, and too clean, as if denuded of its epithelium, or it may be red and fissured, or covered with aphthæ. The skin is often rough, dry, and subject to eruptions of urticaria, or papulæ, or scales. The circulation is tranquil, except during digestion, but there is often great emaciation. The urine may be high-coloured and acid, with a copious deposit of lithates, or it may contain oxalate of lime, and then there is often frequent desire to void it; or it may be pale and alkaline, with a white deposite of phosphates, or an iridescent pellicle on its surface. The bowels are generally constipated, unless there be tubercular disease of the lungs [which is often found connected with it), when there is diarrhœa, and frequently an evening paroxysm of fever. The sympathetic disorders of the nervous system are numerous, evinced by headache, vertigo, muscæ volitantes, sleeplessness, irritability of temper, or despondency, apathy of mind and body, pains in the limbs, and hallucinations. They may suffer from dyspnœa, cough of a hard, resonant character, and even paroxysms of asthma, palpitations, pulsations in the epigastrium, with irregularity or intermissions in the pulse. Most of these symptoms, however, are met with in mere dyspepsia, also in specific diseases of the stomach, so that a correct diagnosis is often exceedingly difficult.

Two circumstances are of great importance in making a diagnosis; first, the length of time the disease has lasted; secondly, the result of treatment, for, if the disease has lasted a considerable time, and been aggravated by the ordinary treatment of dyspepsia, the great probability is, that the symptoms are caused either by a chronic inflammation of the gastric mucous membrane, or depend on some specific disease.

Chronic gastritis may be distinguished from cancer in this, that the former mostly supervenes on, and complicates some other disease, or is caused by intemperance, and errors of diet; secondly, that there are frequent bilious vomitings; thirdly, that vomiting occurs soon after food has been taken; fourthly, there are often pain and tenderness at the epigastrium from the commencement of the illness; fifthly, there is always more or less of fever during digestion; sixthly, there is no vomiting of stuff like coffee-grounds; seventhly, no tumour can be detected; eighthly, there is not the peculiar aspect that the victims of malignant disease present.

The causes of chronic gastritis are various: it often occurs secondary to tubercular phthisis, to disease of the heart or the liver, and is often the most prominent feature in Bright's disease of the kidney, but it is generally caused by intemperance *in eating* and drinking. You should be aware, however, that it may also be *caused by* an opposite condition, as has been shown by Mr. Malcolmson, in a letter

addressed, in 1837, to Sir Henry (now Lord) Hardinge, on the effects of solitary confinement, and a bread and water diet, on the health of prisoners in India. He says, "Many men, particularly those of indolent habits, endure a confinement of five or six weeks on bread and water without injury to their health, but in some instances a short period is *sufficient to cause a total loss of appetite, bread is hardly touched, and on other food being allowed, the patient is unable to eat or digest it*, there is constant uneasiness about the stomach, the liver is torpid, the bowels confined, or relaxed with slimy discharges; and the swollen red tongue indicates the existence of irritation of the mucous membrane of the digestive canal, the pulse becomes quick and feeble, while the clammy skin, vertigo, debility, headache, and sleeplessness, show how much the constitution suffers from diminished nervous power; their convalescence is slow, and even the subsequent allowance of food, sufficient for the maintenance of health, often fails to restore him."

Chronic gastritis is generally a tedious disease, very liable to relapse, and though seldom fatal, "per se," yet it may cause death by inducing a state of general exhaustion owing to the long-continued irritation of such an important organ, and its interference with the digestive and nutritive processes. Some authors consider that chronic gastritis may prove fatal by inducing the simple chronic ulcer, and so cause death by hemorrhage, or perforation, or that it may terminate in cancer; but I hope to convince you that they are wrong, neither of these diseases being a result of inflammation. It is certainly true, that a cancer may be excited in the stomach of a person predisposed to the disease, by an attack of inflammation, as we see to occur in the breast after an injury, but there must always exist a predisposition in the constitution.

Before commencing the treatment of chronic gastritis, always make a careful examination of the region of the stomach itself, and at various times, both when the stomach is full and when it is empty; ascertain if there be any tenderness, or induration, or tumour, do not begin by ordering what are popularly termed stomach medicines, or be content with merely prescribing for symptoms. If there be tenderness in the epigastric region, commence by applying four or six leeches every second or third day, for three or four times, so as not to exhaust the patient's strength before you reduce the morbid action in his stomach; allow him but a small quantity of food, and that of the mildest description, consisting of farinaceous articles and milk, order abstinence from all stimulants, from hot tea and coffee, not to distend the stomach, nor to take any active exercise; you must follow up this by counter-irritation, either with croton oil, or a succession of small blisters, or with the tartar emetic ointment, mixed with mercurial ointment. Regulate the bowels by enemata, put him under a mild course of mercury, which will keep up the function of the liver as well as at the same time exercising its specific effects in altering capillary action, and by combining anodynes you will not only allay pain, but correct that morbid sensibility, which often appears to keep up inflammatory action: so give three grains of mercury with chalk, and one of extract of hyoscyamus or of lactucarium every night till the gums become tender. If there be much pain, give one or two drops of dilute hydrocyanic acid, with three grains of bicarbonate of soda in an ounce of distilled water, three or four times a day, or small doses of morphia, or dress the blistered surface with it. Do not push the antiphlogistic treatment too far, as the symptoms may be kept up by a state the very opposite to that of inflammation, and capable of relief by nutritious food and the judicious use of stimuli, for remember that in all inflammations there is a point where antiphlogistic treatment should cease and stimulants come in; so after a certain time you may have recourse to tonic medicines, and commence with the vegetable tonics, as chiretta, quassia, gentian, and if they agree, then you may try bismuth, the preparations of iron, quinine, but watch their effects, and stop them if they cause pain or sickness. There is one medicine which is often of great use in allaying pain and morbid irritability of the stomach; I allude to the nitrate of silver, and it appears to be peculiarly advantageous in those cases in which the tongue is shining and smooth, as if the papillæ had been shaved off. Make your patients wear flannel, use the warm bath occasionally, and take moderate exercise; regulate the diet carefully for a considerable time, even after they consider themselves as cured.

Dr. Budd, in his lectures on diseases of the stomach, has described a form of

inflammation, which may be included under the head of chronic, and in which coagulable lymph becomes effused into the cellular tissue under the mucous coat, which coagulable lymph, if not soon absorbed, hardens and contracts, forming a dense gristly tissue, binding the mucous membrane to the coats beneath. Inflammation causing this result frequently occurs at the margin of a chronic ulcer of the stomach, but it often exists also, especially in the neighbourhood of the pylorus, independently of ulceration, or any other permanent change of texture in the mucous membrane. In such cases, the lymph is generally effused pretty evenly about the pylorus and leads to the formation of a gristly ring or band, which, by its contraction, permanently narrows the orifice. He states that this form of disease seldom occurs till near the age of forty, and is almost invariably the result of intemperance in drunkards; in these cases, the pyloric orifice becomes gradually narrower, and the action of the muscular fibres near this part is impeded, so that the stomach seldom empties itself completely, and the acid residue of digestion in it ferments, causing heartburn, sour eructations, flatulence, and vomiting. The stomach continues to grow larger, and as its capacity augments, the vomiting may become less frequent, though a greater quantity is thrown up at a time, and eventually the disease destroys life by impeding the passage of food into the intestine. This disease has been mistaken for carcinoma, as it produces similar symptoms to those of cancer of the pylorus, but is distinguished from it by its slow progress, by the absence of hemorrhage, which frequently occurs in cancer, by there not being any perceptible tumour, and by its not having a tendency to disseminate itself and infect neighbouring parts. In the early stage of this disease our treatment should be directed to reduce inflammation, and promote the absorption of effused lymph, leeching, the cautious administration of mercury, followed by iodide of potassium, and counter-irritation will promote those objects, but the proper regulation of diet, and the giving up of intemperate habits, is of the greatest importance towards insuring a complete recovery.

Under the head of chronic gastritis, we may consider an affection of the stomach which has been denominated gastrorrhœa, and is characterized by the copious vomiting of a clear, glairy fluid, usually insipid, resembling in appearance the uncoagulated white of eggs, or simple mucus; the discharge occurs most frequently in the morning fasting, but may take place at any time, and it is a curious fact, that this fluid is often thrown up after meals, without a simultaneous discharge of food from the stomach. Andral has recorded the case of a woman who vomited every day about four pints of this glairy fluid, and yet never discharged either food or drink; on dissection there was a general thickened state of the mucous membrane of the stomach, which was of a brownish colour, and the follicles were remarkably developed. This condition appears to depend on a catarrhal state of the stomach, and though it may occur under the same influences as ordinary catarrh of the bronchial mucous membrane or conjunctivitis, yet it is more frequently observed as a consequence of congestive disease of the portal system. The mucous membrane becomes congested, presents a swollen, œdematous, or granular appearance, and is covered with a thick tenacious layer of mucus, which is sometimes found to be alkaline in its reaction, is with difficulty washed off by water, and consists of mucus-corpuscles, nuclei, and epithelium; Dr. Jones considers this fluid to be analogous to the secretion of mucus which takes place in ordinary catarrh; but I think that it is chiefly connected with a disordered condition of the mucous follicles, which relieve themselves by a copious exudation of mucus; it is a troublesome form of disease, but seldom fatal, unless in old persons, when the pyloric region is the part found to be chiefly affected. The chief symptoms complained of are a total want of appetite, a sense of weight and distension in the epigastric region after taking the smallest quantity of food, pain between the shoulders, occasional vomiting, constipation, the tongue is coated with a thick layer of white mucus, there is a constant bad taste in the mouth, patients suffer from acrid flatulent eructations, cold feet, and a languid circulation.

This disease is often met with in drunkards, and is then generally associated with the disturbance of the nervous system, induced by hard living and characterized by sleeplessness, or sleep disturbed by uneasy dreams, a wretched feeling of exhaustion in the morning, and a tremulous state of the hands and tongue. Similar symptoms *may*, however, occur in persons of temperate habits, but whose nervous systems

are exhausted by mental anxiety, want of sleep, or deficiency of food, as these influences will cause hallucinations, tremor of the hands and tongue, total loss of appetite, and vomiting, just as much as the intemperate use of spirits. This affection is also common among the women of large towns, who are overworked, badly fed, and often addicted to intemperance.

In the treatment of this disease, you must first remove the exciting cause, make them renounce intemperate or irregular habits, adopt a regular and nutritious diet, take every morning, fasting, a small tumbler of cold water, or tepid, if it is more agreeable, and follow that, after about half an hour, with an ounce of infusion of gentian, quassia, chiretta, or calumbo, which may be taken with a drachm of tincture of the same two or three times a day, a short time before meals. As there is generally much bilious congestion, with constipation and flatulence, give five grains of inspissated ox-gall, with three of extract of rhubarb, and three of compound galbanum pill at night. Opium is one of the most efficient remedies in this disease, as the appetite generally returns when the nervous system has been refreshed by sleep; so the best way to give it is in a full dose at night. I have used the tinctura cannabis indicæ, combined with aromatic spirit of ammonia, in one case with benefit, where it not only corrected the irritability of the stomach, but also allayed the wretched sinking sensation which the drunkard suffered from when deprived of his habitual stimulus. In all these cases you must make them take solid nourishing food, for no medicines can have any good and permanent effect till the stomach is able to digest solid food. Dr. Osborne, in his "Propositions on Diseases of the Stomach," published in the 'Dublin Medical Journal,' makes some good observations on the diet and medicines suited to these diseases. He advises, "when meats are taken, they should be such as are most free from osmazome, as chickens, rabbits, sheep's trotters, &c., and should always be accompanied by boiled rice or other vegetable matter, in order to diminish the stimulating effect;" he also recommends the use of yolk of eggs, and cites a case of vomiting from a congested state of the stomach in the last stage of diseased mitral valve, in which great relief followed its use. He lays great stress on "dilution of the contents of the stomach," as he considers that the mucus is dissolved, and so renders the membrane accessible to astringent remedies; and he thus explains the efficacy of mineral waters in irritability and chronic inflammation of the stomach, as when an invalid at one of the spas drinks six or eight beakers of water before breakfast, and walks in the intervals, he washes out the mucus, and then the small proportion of salts held in solution acts on the membrane as sedative and astringent.

He advises that the patient should drink a tumbler of tepid water on an empty stomach, and use a little gentle exercise before taking his medicine, which ought to consist of astringents in sedative doses, such as the acetate of lead in solution, in doses of one or two grains, three times a day, to which may be added acetate of morphia if there be excessive secretion of sour fluid. Sulphate of zinc is useful in very chronic cases, also the mineral acids, and my friend, Dr. Hudson, tells me that he has used sulphate of alum in doses of ten grains with much success. The flower of mustard, simply mixed up with water, applied on a cloth, and suffered to remain on till smarting is produced, is a powerful adjuvant, interferes with no other remedy, requires no dressing except dry lint or wadding, and may be used every evening on going to bed. Nitrate of bismuth is a medicine which is very efficacious when the stomach secrets an unhealthy mucus, or when there is an excessive or untimely secretion of gastric juice, which is often met with in connexion with tubercular disease of the lungs, and also in infants when vomiting with exhausting diarrhœa results from the irritation of teething, or the use of improper food, or from the change of diet on weaning, the "weaning brash" of some writers, which is in many cases a gastro-enteritis. Bismuth appears to exercise a peculiar action on the mucous membrane with which it is brought in contact, restrains undue secretion, and has a sedative influence on the stomach, both by its direct action on the mucous membrane, as well as by modifying the excessive secretion of irritating fluids. The best way to give it is in water, lime-water, or milk, a short time before meals. Three, five, or ten grains, three times a day, is quite sufficient. It appears to soothe the mucous membrane over which it passes, and has little effect on the general system, except indirectly from the action it exerts on the stomach. *It may, however, be* advantageously combined with other medicines,

which tend to assist its action, as prussic acid, opium, magnesia, or chalk. I have found its combination with dilute hydrocyanic acid of great use in allaying the morbid irritability of the stomach, which occasionally complicates acute inflammatory affections of the chest, and renders the convalescence tedious and dangerous. These patients sometimes suffer from constant nausea, great thirst for cold drinks, and vomiting, not only of food and drink, but also of quantities of very sour fluid, which often exceeds in amount the proportion of fluids actually swallowed. In such cases I am in the habit of prescribing a scruple of bismuth with twelve drops of dilute hydrocyanic acid, in six or eight ounces of either water, lime-water if there be diarrhœa, or in the solution of magnesia if the bowels are confined. Of this mixture an ounce, three or four times a day, will generally allay all the distressing symptoms, and improve the appetite and digestion.—*Dublin Hospital Gazette, Jan.* 15, 1856, *p.* 369.

[Dr. Handfield Jones, who has paid particular attention to the alterations in the solitary lenticular glands and follicles, says, that they may be most easily demonstrated by immersion in dilute acetic or muriatic acid, when they appear as dead white, opaque, round, or linear bodies, about the size of a pin's head, lying in the deeper part of the mucous membrane.]

These follicles are generally easily seen under a low magnifying power, and appear to constitute a great part of the mucous membrane itself; they open into minute pits on its surface, and in the normal state are full of secreting cells. In *fatty degeneration or atrophy* of the mucous membrane, they are filled with highly refracting particles of fat, but are destitute of secreting cells. These changes have been noticed by Dr. Habershon, who describes the symptoms to consist "in great prostration and exhaustion, with complete loss of appetite, a clean tongue, no pain, or thirst, or vomiting, but inability to take food." They have been observed in phthisis, struma, exhausting suppuration, often associated with fatty liver, and though probably secondary to these conditions, yet they occasion much distress, and are often the immediate cause of death. Dr. Habershon suggests, that the large sympathetic ganglia of the abdomen are principally concerned in the production of fatty degeneration of the follicles of the stomach, and hence its association with other degenerative changes. Some well marked examples of *hypertrophy* of these *solitary* glands have been recorded by Dr. H. Jones, who considers "that their structure is of the nature of an interstitial growth, inducing atrophy of the proper elements of the tissue," and that "though it does not associate itself especially with any other morbid change, yet it resembles those diseases known as encroaching on the natural tissue by fibroid interstitial formation, and which occur in an unperceived latent manner, being often first recognised by secondary results. Cirrhosis of the liver, stenosis of the cardiac orifices, Corrigan's pulmonary cirrhosis, are typical instances of this kind;" and Bright's disease is, in his opinion, also of the same family. He considers that there is no necessary connexion between this change and inflammation, and recommends the bichloride of mercury, with or without bark, internally; with this cod-liver oil may be conjoined, and also baths of the Kreuznach waters, as they have been used with success in analogous conditions of the uterus by Dr. Preiger.

Dr. Osborne, in his propositions, states, that "sour eructations, and vomiting of sour fluid, with a sense of distension in the stomach after eating, are indicative of irritation of the gastric glands," and advises six or eight drops of the tincture of opium to be taken half an hour before meals, as it "first produces its sedative action on the irritable glands, and then being subjected to the digestive process along with the food, appears to be deprived of its narcotic power before it passes into the intestines." These glands are also subject to ulceration, constituting the "gastritis folliculosa" of Cruveilhier, or the "hemorrhagic erosion" of Rokitansky, who describes them "as round or roundish spots of the size of a pin's head or a pea, or narrow elongated streaks, at which the mucous membrane appears dark red, soft, bleeding, and presenting a depression in consequence of loss of substance or slight erosion." A red, dirty brown, or soot black coagulum is generally fixed in each depression, and this must be removed before the nature of the disease becomes evident. These ulcers vary greatly in number and size; the whole of the *stomach*, with the exception of the fundus, may be studded with them, and marked *with red or brown spots*, according to the colour of the coagula. They may occur

at every period of life, are not unfrequent in children, and even in infants, of which Billard gives a very good illustration, and are found chiefly at the pyloric portion. They may occur as an idiopathic affection, but are more frequently consequent on some acute or chronic disease, especially if the patient has been a drunkard, and are generally marked by hemorrhage, which may be so slight as merely to streak the gastric mucus, or may amount to a considerable quantity (often resembling coffee-grounds), which consists of blood, acted on by the acid secretions of the stomach. In these cases there is usually a catarrhal state of the mucous membrane of the stomach, the appetite and digestion are impaired, there is often a thin white fur on the tongue, and a diffused soreness over the epigastric region, particularly after solid food, which is often rejected. These superficial ulcers, if neglected, or aggravated by intemperance, may become deep, but if properly treated they will heal, and the stomach be restored to its usual condition. Apply a few leeches to the epigastrium, and follow them up by counter-irritation; allow only mild drinks, such as milk, water, or ice, taken in small quantities at a time; but above all regulate the food, which ought to be restricted to farinaceous substances, and even when the diet is improved, it should be given so as not to irritate the stomach, but if pain persists, or vomiting continues to be excited by food, you must then give from a quarter to half a grain of nitrate of silver in pills, combined with powdered opium. If the bowels are costive, use enemata, or prescribe aloes, or the compound colocynth pill, which acts chiefly on the large intestines. It is a curious fact, recorded by Dr. Budd, that Mr. Simon, of London, has caused bleeding ulcers, "resembling the linear hemorrhagic erosions of the human stomach," in the stomach of cats, by keeping them confined for three weeks in a dark place, but with a fair allowance of their usual food; so that we may infer these ulcerations were the result of enfeebling agencies, acting on the general system, and through it on the stomach. It is well to be aware of these facts, for, as Dr. Budd observes, "it is possible that confinement, with insufficient light, and other conditions unfavourable to nutrition, might have the same result in man."—*Dublin Hospital Gazette, December* 1, *p.* 321; *Dec.* 15, 1855, *p.* 339; *Jan.* 15, *p.* 369; *and Feb.* 1, 1856, *p.* 7.

41.—GASTRIC NEURALGIA AND GASTRIC ULCER.

By Dr. C. Handfield Jones, Assistant Physician to St. Mary's Hospital.

[The first case which the author mentions occurred in a woman aged forty; she had been ill about fourteen days with pain at the stomach, especially severe after food or drink. She had sickness and vomiting, and other symptoms of dyspepsia. The pulse was weak, tongue natural, and appetite good, but she dared not take anything for fear of the pain. She was desired to take exercise in the open air regularly every day; and for medicine, eight grains of citrate of iron and quinine three times a-day. Under this treatment she rapidly improved, and was soon quite well.]

The features of neuralgia were well marked in this case. The pain was severe, paroxysmal, increased more by liquid than by solid ingesta, unattended with pyrexia, or foul tongue, but with signs of languid circulation and debility. It occurred during the prevalence of neuralgic disorders. These phenomena were plain enough in themselves; but the past history of the occurrence of hæmatemesis, during a similar attack, might have made some practitioners hesitate. The idea would naturally present itself that as there had been (in all probability) ulceration before, so now it might again be in progress; and the very severity of the pain would, I think, to some, have appeared an additional argument in favour of this being the case. Now, there are not a few who can scarcely dissever in their minds the idea of inflammation from that of ulceration; and with whom the administration of tonics, especially applied to the ulcerated surface itself, would find little favour. They view the ulcer as a specially tender and sensitive spot, and conceive that the blandest food, and sedative or gentle tonic medicines, are alone fit to be brought into contact with it. I believe I have shown in my work on 'Morbid Conditions of the Stomach,' pp. 212, 213, and in the 'Medical Times and

Gazette,' July 28th, 1855, that a much more decided line of practice may very often be followed with the best results. The view taken is that the perforating gastric ulcer is essentially the result of a local failure of nutrition, and not in any degree *necessarily* connected with inflammation. The chief point held in view is to bring the gastric mucous membrane into the healthiest possible state, and to promote the general strength and vigour as much as possible, in order that the reparative process may go on actively. The chief rule, therefore, to be observed respecting diet is that nothing should be taken which causes pain, while it is considered very desirable that the food should be as nutritious as possible consistent with good digestion. If the stomach can receive a moderate meal, it should be allowed a sufficient interval of rest before another—say five or six hours; and, during the early period of digestion, all bodily or mental exertion should be forborne. This latter rule especially I consider to be of the last importance. The object of medical treatment is, first, to arrest any catarrhal or other morbid action which may be going on in the general mucous surface; and, secondly, to invigorate the weakened organ and the whole system. For these purposes, a little counter-irritation, with sedatives and astringents, may be necessary at first; but, as soon as they can be borne, tonics should be administered, and in most instances, I think, they need not long be delayed. Acids and bitters, iron and quinine, and cod-liver oil, I have found of very great benefit, and their employment should be continued, together with all other invigorating means, such as change of air if possible, until such a degree of health is attained that it may be fairly presumed the reparative process has closed the breach of surface. The points I insist on are, that in most cases tonics are very useful to improve the health, and promote the repair of the ulcer; that they are not contra-indicated by the existence of an ulcer; and that, in many instances, they may be given almost from the very first. On these grounds, feeling sure that the iron and quinine was needed for the cure of the neuralgia, the very probable suspicion that ulceration also might have recommenced, only seemed to me to give additional reason for the same treatment, as I believed that it would benefit both morbid states, supposing them to co-exist.

Case 2. ——— ———, aged 34, female, cook, admitted Dec. 12, 1855; of tolerably healthy appearance; no marked pallor. She suffered fourteen months ago from pain in the chest; never free from it since. Six weeks ago she brought up a quart of coagulated blood. Has generally had good health, but has suffered from inflammation of the eyes, which has ceased since the chest became affected. Tongue quite clean; bad appetite; no thirst; bowels rather costive; catamenia regular, but too profuse, weakening her; skin warm; pulse weak, rather sharp. She is much confined to the house; does not sleep well, from pain or incubus; feels very weak, but has violent pain at the lower part of the sternum, "inward," not increased on pressure, not worse after food; vomits up, after any exertion, clear water, without increase of pain; feels much better when quiet: finds benefit from bottled stout, and brandy-and-water. She was ordered citrate of iron and quinine, ten grains, three times a day; and camphor, two grains; extract of hyoscyamus, five grains—every night.

Dec. 19. Decidedly better; has vomited only twice, and not at all the last two days; less pain at the chest; sleeps better. To continue the medicine.

[After this time she had more pain in her side, for which she was ordered half a grain of morphia three times a day, and a blistering plaster to the epigastrium. As the sickness still continued, five minims of dilute hydrocyanic acid were added to the mixture, and as this failed to give relief, she was ordered, strychnia, one-sixteenth of a grain; muriatic acid, one minim; water, one ounce three times a day. In a few days she was not like the same person: she rapidly improved, and was discharged at her own request.]

This case was very similar to the preceding, but was of a more acute kind. The existence of ulceration could hardly be doubted. The severe pain was not owing to the ulcer, but to neuralgic disorder, as positively proved by the effect of nervine tonics. The effect of over-exertion in aggravating the pain, and of rest in allaying it, is very characteristic of neuralgia, and seems to point to a weakened condition of the vis nervosa as at least part of the pathological state. The catarrhal flux, induced *by the pain*, probably depended on a paralytic condition of the vascular nerves, *and the two* phenomena, the pain and the flux, evidently find their analogues in a

common sneeze. The failure of iron and quinine, which at first had done good, as well as sedatives (hydrocyanic acid and morphic), the error of applying a blister, and the immediate good effect of strychnine, are points worthy of notice. She was discharged sooner than she ought to have been, as, though the neuralgia was cured, it could not be thought that the ulcer was yet safely healed.—*Lancet, March* 22, 1856, *p.* 312.

42.—ON THE NATURE AND TREATMENT OF PERITONITIS, FROM RUPTURE OR PERFORATION OF ONE OF THE HOLLOW VISCERA.

By Dr. James Stannus Hughes, Surgeon to Jervis-street Hospital.

The following are the principal indications which demand attention in the treatment of a case of traumatic peritonitis, accompanied by evidences of a rupture of one of the hollow viscera, viz.:—Firstly. *The arrest of the peristaltic motion of the intestines, with a view of favouring adhesions and preventing fæcal effusion into the peritoneal cavity.* Secondly. *The adoption of measures for the purpose of subduing or circumscribing the rapidly progressive peritoneal inflammation.* Thirdly. *The withdrawal or cautious exhibition of fluid nourishment until the period of danger of their extravasation into the abdominal cavity shall have passed by.*

The attainment of the first object, in the treatment of traumatic peritonitis, can be best effected by the administration of opium, or some of its preparations, in full and repeated doses. Some years since, Mr. Bates, of Sudbury, directed the attention of the profession to the great value of opium, both by the mouth and rectum, in severe peritonitis, where blood-letting was obviously inadmissible; and Dr. Graves, some thirty years ago, "treated successfully two cases of peritonitis after tapping, and occurring in patients of bad habit, by opium, without drawing a drop of blood; and, more lately, the same remedy in a case of peritonitis from effusion of purulent matter into the serous sac;" but to Dr. William Stokes, on the one hand, is the merit due of having been the first to prove that opium, when administered with boldness, has the power to save life in peritonitis from perforation of an intestine from previous disease; and to Dr. John Hart, late Professor of Anatomy in the Royal College of Surgeons in Ireland, are we, on the other hand, indebted for the proposal of administering opium in large doses, in cases of fæcal effusion into the peritoneum from rupture of an intestine, the result of external violence, *with a view of controlling the peristaltic action of the intestines.* The following are the details of the first case of peritonitis from perforation, treated successfully by Dr. Stokes, a case which is in every way interesting, but especially so to the practical physician, as being the first reported case of the kind, as far as I know, to be found in the annals of medicine. "A middle-aged man was admitted on the 27th of June, 1830, apparently in the last stage of peritoneal inflammation; the disease was of three days' standing; had supervened suddenly, in a few days after hypercatharsis induced by a large dose of glauber salts, and followed by long-continued exposure to cold. It was attended by several of the usual symptoms of peritonitis from ulcerative perforation of the intestine; the belly was swollen, and so exquisitely tender, that the slightest pressure made the patient utter screams. The countenance was Hippocratic, and the patient tormented with constant hiccup. Coldness of the extremities had commenced, and the pulse was weak and slow. Before the hour of visit leeches had been applied to the belly, without relief; the patient was then ordered one grain of opium every hour. The next day it was found that the symptoms were improved. *The patient had not experienced the slightest coma, headache, or delirium.* The same plan of treatment was persevered in, the daily dose of opium being gradually diminished, until the 7th of July, when the convalescence having been completely established, the remedy was omitted. During this time diarrhœa set in for three or four days severely; this was treated by the application of a few leeches to the anus, and the use of anodyne enemata.

"The patient took in all one hundred and five grains of opium (exclusive of that in the injections), without ever experiencing any of the usual effects of this substance, when exhibited in large doses."

Dr. Wood, Professor of Medicine in the University of Pennsylvania, has, in the following observations, whilst pointing out the treatment to be adopted in enteric fever, added his valuable testimony in favour of opium in cases of peritonitis from intestinal perforation:—"A case has recently come under the notice of the author, in which, during apparent convalescence from an attack of fever, when the pulse had become natural in frequency, and all the symptoms were favourable, the patient was suddenly attacked with violent pain in the right iliac region, extending over the right side of the abdomen, with great distension, exquisite tenderness on pressure, and extreme frequency of the pulse. It was the opinion of Dr. Gerhard, who was the attending physician, and myself, that perforation had taken place. We put the patient under the powerful influence of morphia, applied a blister to the abdomen, and had the satisfaction to see our patient ultimately recover."

Drs. Cusack, Patterson, Gooch, Churchill, and others, have spoken highly of the utility of opium in low puerperal peritonitis, and Dr. Stokes has suggested a trial of the same remedy in peritonitis from rupture of the bladder or uterus, traumatic rupture of the intestines, or after the operation for strangulated hernia.

The following is a case of acute peritonitis, with supposed rupture of the urinary bladder, successfully treated with opium, according to Dr. Stokes' suggestion, by one of our most eminent provincial practitioners, Dr. Mackesy, of Waterford; for the notes of the case, and the remarks thereon by Dr. Mackesy, I have to thank Dr. Stokes.

"January 25th, 1831. Robert Bennett, a blacksmith, æt. 28, of great muscular strength, employed at Knockmahon Copper Mines, had drunk freely yesterday evening in the public-house of the village. From time to time he neglected the urgent call to pass water, but at last was going out for that purpose with a distended bladder, when one of his companions caught him, challenged him to wrestle, threw him down, and fell heavily upon him. Immediately he was unable to raise himself from the floor, complained of most acute pain in the belly, and said something had burst within him. He was visited at once by Dr. Baker, of Bonmahon, who passed a catheter into the bladder and drew off about an ounce of bloody urine; no urine was found on his clothes, he was in profound collapse, and all his distress was referred to his desire and inability to pass urine; he had vomiting which distressed him greatly, and had a peculiar pinched expression of face, indicative of great anxiety.

"He was put in a warm bath, warm diffusible stimulants given him, and after some time an enema was administered.

"The injury occurred about seven o'clock in the evening. In about two hours, when reaction had set in, he was bled from the arm nearly *ad deliquium*, but without any decided relief.

"I was summoned from Waterford, and after hearing the foregoing details from Dr. Baker, I proceeded with him to visit Bennett, about twenty-four hours after the receipt of the injury. He was lying on his back, his knees drawn up, with hoops extended across the bed to bear off the weight of the bedclothes, so exquisitely tender was the abdomen. The greatest anguish and distress were depicted in his face; refers all his distress to his inability to pass urine; belly prominent and tense, but he would scarcely allow a hand to be put near him; pulse 130, small; breathing hurried. I passed a full-sized gum-elastic catheter into his bladder; a small quantity of bloody urine came off; thirty leeches were applied over the pubic and iliac regions; warm fomentations over the whole abdomen as hot as could be tolerated, under oiled silk. A drain of blood to be kept up as long as the pulse and strength would admit, by leeches over the pubes. A draught of sixty drops tinct. opii was given him at once, and in two hours after a grain of opium in pill every hour to the eighth dose, unless sleep supervened. The catheter to remain in the bladder; a stop being adjusted, so as to prevent the instrument entering the bladder further than the eye of it.

"January 26th. Heard by letter from Dr. Baker that there was some mitigation of symptoms. He had taken a grain of opium every hour for six hours, when he was disposed to sleep; in an hour had another grain, and then slept for three hours, in a profuse perspiration, and expressed himself relieved on awaking. Takes *gr. i. of opium* every three hours; fomentations, &c., as before.

"*January 27th.* Visited Bennett. Countenance much improved; abdomen

still tense and painful on pressure, but in a less degree. Has had a grain of opium every three or four hours; pulse 112, more developed; water passes through the catheter freely; not tinged with blood.

"Withdrew the catheter, and passed a new one. To persevere in all respects as before.

"Bonmahon is fifteen miles from Waterford. I did not again visit the case. Dr. Baker continued the catheter to the seventh day. He then passed it every four hours for a few days, when Bennett was able to relieve himself naturally. He gradually recovered, and in seven weeks returned to his work.

"This man had every symptom of rupture of the urinary bladder, with *the exception* of his having *recovered from the injury*. Had he died, and no *post-mortem* examination been made, no doubt could have existed as to the nature of the lesion.

"The intensity of the collapse, setting in immediately on receipt of the injury, the rapidity with which acute peritonitis supervened, the sensation of something having given way internally, followed by the small quantity of bloody urine, drawn off by the catheter, are all quite characteristic of the injury.

"The practical part has reference to the efficacy of opium freely administered, up to the point of producing narcotism. That the happy issue of this most formidable lesion was to be attributed to its use, as far as human agency goes, I have not the slightest doubt.

"In conversation with Bennett, I ascertained that in the early part of the evening he had drunk freely of punch, and had been out several times to pass water. For more than an hour previous to the injury, finding (to use his own term) his head going, he had only drunk warm water and sugar, so that, in all probability, the urine contained in his bladder, when ruptured, was of a less irritating quality than usual."

Dr. Churchill has furnished me with notes of the following case which occurred in his practice many years ago. "A woman had hysteritis after delivery, from which she did not perfectly recover, and two or three months after, in making some exertion, she felt something give way, and was immediately attacked by acute peritonitis. Dr. Haughton saw her first, and adopted the usual treatment, but without any apparent relief; we then put her on opium, gr. j. ter quaterve in die, which was followed by an amendment of all the symptoms, and ultimate recovery. I fear to state how much opium she took, but I ought to state, that the debilitated condition in which she was when I first saw her, precluded any more active measures." Dr. Churchill adds that he took the hint as to the treatment that should be adopted in the foregoing case from Drs. Graves and Stokes.

Opium is, therefore, to be given in full and repeated doses, in cases of traumatic peritonitis, where grounds exist for believing that a rupture of a hollow viscus has taken place, and for the reasons stated the patient must be held steadily under its influence until the period of danger shall have elapsed. The usual manner of giving opium in these cases is to administer it in doses of from half a grain to one grain every hour in the form of pill, watching, of course, its effects with the greatest anxiety, the patient being frequently visited whilst under the opiate treatment, for although the generality of persons labouring under this disease tolerate opium wonderfully well, all do not do so. Should incessant vomiting be present in a case of the kind, we must then order the opium in the form of enemata in suitable doses, and at proper intervals.

The second indication in the treatment of traumatic peritonitis, accompanied by symptoms of rupture of one of the intestines, when the result of *external violence*, can, according to my experience, be best accomplished by the full but judicious administration of mercury, by local depletions, and lastly, by extensive counter-irritation.

I may possibly here be asked,—If opium, uncombined with any other remedy, has proved itself capable of curing peritonitis from perforation of an intestine, the consequence of previous disease, why not trust it alone in peritonitis following on rupture of an intestine from external violence? A moment's reflection will, however, satisfy any impartial person that the foregoing cases are essentially different in character, inasmuch as in the former constitutional complications of a debilitating character are necessarily present, none in the latter, and that consequently

our remedies must, to be successful, be pushed with much more vigour in the latter than in the former.

In stating my conviction that mercury, pushed to salivation, is indispensable for the purpose of arresting or circumscribing acute traumatic peritonitis, the consequence of rupture of an intestine from external violence, I am well aware that the opiate and mercurial plans of treatment are considered incompatible in such cases by some, who assume that mercury will, if given early, prevent the effusion of lymph necessary for the union of the injured intestine, or its adhesion to a neighbouring viscus, and that if administered late it will cause premature absorption of the "salutary adhesions," should such already have been established. I trust, however, that I shall be able to show, by a reference to the following facts, that the prejudices entertained against the administration of mercury in traumatic peritonitis, accompanied by a rupture of the intestine, are purely hypothetical:—

1stly. Innumerable pathological investigations have proved, beyond doubt, that in rupture of the intestines lymph is effused long before the system can be brought under the influence of mercury, which cannot, according to my experience, be effected, even under the most favourable circumstances, much before the third day.

The following case, reported by Dr. Croker King, now Professor of Anatomy in the Queen's College, Galway, shows how very soon lymph may be poured out after a rupture of one of the hollow viscera:—

"*Rupture of the Small Intestine.*—Julia M'Donnell, aged 30, admitted June 12. Half an hour before admission she had been buried beneath the fallen roof of her cabin, from whence she was dug out with as much expedition as possible; but even in that short time, she had fallen into a state of collapse. Her limbs were cold, and her pulse imperceptible at the wrist. The only complaint she uttered was of pain in the left hip.

"The patient was put to bed—external warmth applied, and a warm stimulant administered. There were no outward marks of injury, except some slight contusion about the face. In the evening she became extremely restless; the pulse, although perceptible, was so small and rapid, as to be countless; the respiration very hurried; the bowels not moved since the accident; the urine freely voided: complains of pain in the right iliac region and back, but nowhere else; no tenderness of abdomen on pressure.

"Habeat tinct. opii gutt. xxx. instanter.

"13th. Passed a very restless night; continually tossing about in bed; no sleep.

"Eight o'clock, A.M. Pulse scarcely distinguishable; respiration panting; countenance sunken; complains not of pain, but of general distress and oppression; abdomen tympanitic, and tender on pressure in the right iliac region; tongue white and dry; stomach undisturbed; mental faculties unimpaired.

"Ordered continuous warm stupes to the abdomen; an enema, containing 30 drops of laudanum, immediately, and a glass of wine, with 30 further drops, every second hour.

"Twelve o'clock, morning. Enema rejected, but wine and opium retained on the stomach; temperature of limbs sinking fast; cold clammy perspiration on face and trunk; pulse gone at wrists; intellect still perfect; craved more wine, which on being given, rallied her for a moment, but she rapidly sank again, and after one or two convulsive gasps, expired—the event being only twenty-six hours from the receipt of the injury.

"It was in virtue of an early diagnosis, made by Dr. Houston, of rupture of an intestine, and of the sinking state of the patient, that the plan of treatment by opium and wine was adopted. No treatment, however, could have saved life.

Examination, twenty-four hours after death.—The ilium was ruptured within four feet of its termination. Two small openings existed close to each other, from which the contents of the intestine had escaped into the peritoneal cavity. The more fluid parts of these contents had gravitated into the pelvis; the more consistent parts were spread over the coils of the ilium in the right iliac fossa. The peritoneum, at this place, was highly vascular, *and the intestines were glued by soft lymph.* The inflammation in the more remote parts of the peritoneum had made comparatively little progress."

2ndly. Mercury, when pushed to salivation in the analogous cases of wounds of *the more vital* organs and their serous membranes, as for instance, the brain and

arachnoid, the lungs and pleuræ, possesses an unquestionable power of arresting the inflammation of the injured viscera and their investing membranes, without either averting the effusion of lymph necessary for the union of the wounded organ, or causing its untimely absorption; thus you recollect that within the last month I pushed mercury to salivation in Keegan, No. 3 Ward, who was admitted with a wound and subsequent inflammation of the right lung and pleura, consequent on a severe fracture of three of the true ribs, the result of a violent kick of a horse, under which treatment the man rapidly and perfectly recovered.

3rdly. The great majority of hospital surgeons of the present day, encouraged by experience, very properly prescribe mercury after all severe operations involving the peritoneum, as, for example, in cases of large strangulated herniæ, as a prophylactic agent against the supervention of inflammation, without the slightest apprehension of either preventing or delaying thereby the union of the wound unavoidably inflicted for the preservation of the patient's life. Thus, for instance, Mr. Robert Adams, of the Richmond Hospital, has published a case, which he treated in conjunction with Sir Philip Crampton and Mr. Elliot, strikingly illustrative of the value of mercury as a prophylactic against inflammation involving the peritoneum. The case alluded to was one of strangulated congenital hernia of extraordinary size, in which, from the extent of the wound (necessarily six inches in length), and from the exposure of three feet of intestine, subjected of course to handling in their reduction, mercury was freely administered with a view of meeting the inflammation so likely to attack the peritoneum after such an operation, under which treatment the case proceeded to a favourable termination. One of the aphorisms laid down by Mr. Adams at the conclusion of the foregoing case runs thus: "That in the subsequent treatment of the case, it is well to anticipate the symptoms of acute peritonitis by the treatment which is usually found serviceable, when it has actually appeared, namely, by the active exhibition of mercury."

In another case of strangulated femoral hernia which I visited, in consultation with Dr. Symes, of Kingstown, we pushed mercury to salivation, after the reduction of the hernia had been accomplished by operation, whilst the patient was under the influence of chloroform, and the woman made an unusually rapid recovery, although the hernia had been in a state of strangulation for six days before Dr. Symes was called in. The particulars of the foregoing case were brought by me before the meeting of the Surgical Society of Ireland, Dec. 18th, 1847, and published in the 'Dublin Medical Press,' Jan. 5th, 1848.

4thly, and lastly. The rapid and permanent union of a wound, when taking place in a person in a state of salivation, is, in my opinion, a conclusive proof that the administration of mercury neither interferes with nature in the repair of this class of injury, nor causes its subsequent disunion.

While strenuously advocating the employment of mercury in the treatment of acute traumatic peritonitis, accompanied by symptoms of rupture of an intestine, the result of external violence, it is my duty to inform you, that unless its administration is carried out with the greatest judgment, instead of benefiting the patient, the mercury may destroy all chance of his recovery by exciting diarrhœa, the occurrence of which would obviously neutralize the beneficial effects of opium, by rousing the peristaltic action of the intestines, and favouring thereby extravasation of the contents into the peritoneal cavity. For these reasons the mercury should be introduced into the system chiefly by means of inunction.

[As illustrations of the successful combination of the opiate and mercurial plan of treatment, we may mention the following cases, which were accompanied by all the necessary symptoms. The first is that of a dress-maker, aged 32, who while out driving, was thrown violently from the carriage, and when laid on the ground received a very severe kick from the horse in the right side of the abdomen. She vomited a large quantity of blood, and was insensible for half-an-hour.]

On examination, some hours after the accident, Mr. Hughes found the abdomen extremely tympanitic, being apparently distended to the highest possible degree, and exquisitely tender to the touch; there was a large ecchymosis at the seat of injury, the extremities were cold, the pulse weak and compressible. Urine secreted in small quantities, and expelled with great difficulty and pain. Ordered twenty-four leeches to the abdomen, *and pills* of calomel and opium, the former to lay a

foundation for mercurialization, the latter to maintain the bowels in a state of rest. After a few of the foregoing pills had been given, the calomel was withdrawn, and opium in one grain doses was administered every hour, mercurial ointment being at the same time freely rubbed into the axillæ and inside of the thighs. Thirst to be quenched by placing a small piece of Wenham lake ice in the mouth from time to time. On the evening of the second day of treatment the patient had taken ten grains of solid opium without any of the unpleasant effects of that remedy having evinced themselves, when vomiting of a very obstinate character having re-appeared, nothing being retained on the stomach, forty drops of the tincture of opium were administered in two ounces of the mucilage of starch in the form of enema, and repeated at suitable intervals, so as to keep the patient steadily under the opiate influence. On the third day the patient was alarmingly ill, and gave up all hope of her recovery, the vomiting having persisted, assuming a gulping or regurgitating character; the stomach continued intolerant of pressure, and the tympanitis remained unchanged. On this day the patient was seized by loose evacuations from the bowels containing a quantity of coagulated blood, which, however, were soon controlled by the opiate enemata given at shorter intervals. Ordered three ounces of port wine to be given in spoonful doses occasionally; continue the ice. On the morning of the fourth day an amendment in all the symptoms became for the first time apparent; the vomiting ceased, the abdomen became less tympanitic and less painful, and the pulse improved in character. On the same day the patient came fully under the influence of mercury, as evinced by mercurial fœtor and slight insalivation.

On the sixth day the pulse rose in frequency, and abdominal pain increased, in consequence of which mercurial ointment was again freely rubbed into the axillæ, and a large blister was applied to the abdomen.

From this date the patient gradually but steadily recovered, having for several days been kept under the full influence of opium, during which period she took ten grains of solid opium, and 840 drops of laudanum. There was a perfect absence of abdominal frottement, all through, in Mrs. Browne's case. For several days after her recovery, a circumscribed hardness corresponding to the seat of injury could be detected, at which part percussion elicited a dull sound, symptoms obviously the result of the effusion of organized lymph.

Case 2.—J. J. Gibbs, æt. 35, a recruit, was carried into Jervis-street Hospital, on the 23d Dec., 1854. *History of the Case.*—The patient having become intoxicated whilst spending his bounty money, staggered off the footway and fell under a heavily loaded float, the wheel of which passed obliquely over his abdomen. Mr. Hughes having been immediately sent for, found the man in a state of collapse, lying partly on his left side, with his knees drawn up, his thighs being flexed; the abdomen was extremely tympanitic and sensitive of pressure; pulse 105, weak; features pinched, and expressive of great suffering; the pain, which at first was referrible to the left side of the abdomen, rapidly extended over the entire of the cavity; soon after admission, the patient was seized by an intense and prolonged rigor. Leeches were applied to the abdomen, and the patient was ordered calomel guarded by opium. In the course of this evening, the patient was seized with distressing vomitings, and the urine, which was scanty and high-coloured, was voided with extreme difficulty and pain. Ice to be given in small quantities to slake thirst, which is excessive. On the second day, the pain and other symptoms having remained unmitigated, additional leeches were applied to the abdomen; the calomel was now withdrawn, but the opium was continued in half grain doses, mercurial ointment being at the same time freely rubbed into the thighs and axillæ.

The foregoing treatment was continued till the fourth day, when the abdominal pain became less severe, and the vomiting altogether ceased. On this day, slight mercurial fœtor and insalivation were detected. Before the hour of visit the patient was seized with loose evacuations from the bowels, which proved, on examination, to consist of pure liquid blood, in consequence of which two grains of the acetate of lead were added to each of the opiate pills, and a large blister was applied to the abdomen. Under which combined treatment the hemorrhage soon ceased.

Fifth day. Patient considerably improved; abdomen much less tympanitic and

more tolerant of pressure; mouth now fully salivated; continue the opiate pills. From this date the patient progressed to a recovery, and left the hospital on the 16th of January to join his regiment.

At no period of Gibbs's illness was abdominal frottement detected.

It is quite possible that some persons may argue, that in assuming that the foregoing specimens of traumatic peritonitis were accomplished by a rupture of one of the hollow viscera, that such a conclusion has been gratuitously arrived at, and although it is difficult to pronounce with certainty upon the exact nature of the injury in either case, yet few practical surgeons, who have paid attention to injuries of the abdomen, will, I am convinced, doubt the probability of the existence of a rupture of one or other of the hollow intestines, in either of the foregoing cases, when they take into consideration the group of symptoms which were present in each of them, namely:—*the sudden depression of the vital powers; the rapid supervention of peritonitis; the highly tympanitic state of the abdomen; the exquisite tenderness of every portion of that cavity; the absence of frottement; and lastly, the occurrence of intestinal hemorrhage.*

You all must recollect how different were the symptoms in Mrs. Browne's case, as compared with those which were present in that of Cullen, lately in this hospital, under the care of my colleague, Dr Power. Cullen was admitted, you know, labouring under traumatic peritonitis, having been crushed in the abdomen between the shafts of two drays which were passing rapidly in contrary directions, but there were no symptoms of rupture of an intestine present in Cullen; thus in his case there was no sudden prostration of the vital powers, no vomiting or difficulty of passing water; no hemorrhage, from the stomach or bowels; and finally, in his case, the abdomen, instead of been suddenly distended and tympanitic, was, on the contrary, at first retracted. Browne's and Cullen's cases, which occurred about the same time, proved highly valuable to us, as they served to point out most forcibly the differential diagnosis of the two forms of traumatic peritonitis. There can but little doubt be entertained that the opiate treatment proved highly advantageous in Browne's and Biggs' cases, not only by lessening the shock to the system and controlling the peristaltic action of the intestines, but likewise by gaining time for the carrying out of other curative measures.

It is, however, extremely worthy of your recollection, that in neither Browne's nor Biggs' cases did any marked amendment take place, notwithstanding the liberal administration of opium, until mercurial action had set in, as proved by the presence of mercurial fœtor and insalivation, which became established in both cases on the fourth day.

In both Biggs' and Browne's cases, we commenced the mercurial treatment by the administration of calomel combined with opium, so as to lay a foundation, as it were, for rapid mercurialization, after which the calomel was withdrawn, when we had recourse to inunction, mercurial ointment being rubbed in freely, until salivation was fully established, opium being of course at the same time administered in sufficient doses, and at proper intervals, so as to maintain the system steadily under its influence, till the period of danger had elapsed.

It may not be out of place here to mention, for the information of the junior portion of the class, that the conjoint exhibition of opium and mercury, as antiphlogistic remedies, was first introduced into practice by Dr. Robert Hamilton, of Lynn Regis, and subsequently adopted and recommended by Dr. Armstrong of London, in his 'Practical Illustrations of Typhus Fever;' since which period they have been almost universally, at least in Great Britain and Ireland, resorted to, in a combined state, in various inflammations of a serious character, but mor especially in those involving the organs contained within the cavities of the chest and abdomen.

In both Biggs' and Browne's cases, as well as in that recorded by Dr. Stokes, looseness of the bowels set in on the fourth day; in both of the former patients, blood was passed on the same day by the rectum; in Biggs' case, the blood was liquid, in Browne's coagulated. Some persons are of opinion that when the evacuated blood is liquid in ruptured intestines, it is a proof of the injury to the alimentary canal being low down, and that, on the contrary, a discharge of the congulated blood is evidence of an injury having its seat higher up, near the stomach; but I agree with Lisfranc, who says, that this distinction cannot be relied on.

Although, owing to the great depression of the vital powers, which invariably occurs in traumatic peritonitis, the consequence of a rupture of an intestine from external violence, depletion to the same extent as would be requisite in some of the other forms of peritonitis is contraindicated, yet the application of leeches to the abdomen, in both Browne's and Biggs' cases, was attended with apparent benefit. I have often thought that there appeared to be some truth in an opinion which had some weight with the ancients, viz., that local depletions exercise more salutary influences over membranous inflammations, than general blood-letting by either arteriotomy, or venesection, inasmuch as the former acts more energetically on the capillaries of the parts implicated, than the latter.

The application of blisters to the abdomen in the cases already cited, were thought to be of service.

As the recoveries in Biggs' and Browne's cases, were, in my opinion, attributable to a proper combination of the opiate and mercurial plans of treatment, assisted by local depletions and counter-irritation, I strongly recommend the adoption of these measures in similar cases.

I would, in conclusion, observe, that in all cases of traumatic peritonitis, in which a rupture of an intestine is believed to exist, the patient should be enjoined absolute rest in the horizontal posture, and that drinks should be denied the sufferer for the first few days, ar eat least admitted only, as suggested by Dr. Wood, "in such quantities as may insure them against passing through the pylorus," thirst, being, as in Browne's and Biggs' cases, slaked by means of small pieces of Wenham lake ice placed on the tongue from time to time.—*Dub. Hospital Gazette, Feb.* 15, *p.* 19, *and March* 15, 1856, *p.* 49.

48.—*Medicinal Properties of Charcoal.* By James Bird, Esq.—Pure charcoal is known to possess two singular properties, first, the power of absorbing gases to an almost incredible extent, and secondly, the capability of rapidly oxydizing any dead animal or vegetable substance placed in contact with it, as explained by the experiments of Dr. Stenhouse and others. As charcoal is not chemically affected by either acids or alkalies, and is quite insoluble, its admixture with other substances is not incompatible, so that it may be combined with any other kind of medicine, *ad libitum.*

It is a powerful absorbent of fluids, whether aqueous or aeriform; and as it undergoes no change in the human stomach, it may with great truth be described as the only pure absorbent we possess, for the same cannot be said of æther, lime, magnesia, bismuth, or any other mineral absorbent, all of which form salts with the acids they meet with, sometimes to the complete subversion of all their original properties, while the vegetable or farinaceous absorbents, such as flour, starch, gum, &c., are changed by digestion, giving off frequently offensive gaseous emanations as the results of mal-assimilation.

Charcoal is, therefore, recommended as a pure and effective absorbent, applicable either alone, or in combination with other remedies, to the cure of a large number of the acute disorders of the mucous surfaces of the alimentary canal, and also of those of the uterine passages, and particularly in those instances where the secretions are inordinate in quantity, or offensive in condition.

It may, perhaps, induce a more extended trial of charcoal powders if a few instances were named in which the remedy has proved eminently serviceable. In the exquisitely-painful small ulcers within the mouth, on the inner surface of the lips or cheeks, which, at irregular intervals prevail to some extent, and are extremely troublesome, the following wash will be found an excellent remedy:—

R. Pulv. carb. ligni pur. ij.; mel. rosæ ʒi.; decoct. cydoniæ ʒiij.; aq. dest. ʒiv. M. Ft. lotio sæpe adhibenda.

This lotion is also useful in excessive ptyalism; it speedily moderates the discharge, and instantly corrects its fetor, and its application is extremely soothing and agreeable. The same may be said of it when used as a gargle in ulcerated sore-throat, the sloughs separating rapidly and easily, leaving a healthy surface underneath.

In the earlier stages of diarrhœa, a mixture composed somewhat as follows *speedily gives* relief:—

R. Pulv. carb. ligni pur. ℥j. ad ℥iv.; mucil. acaciæ ℥ij.; syr. aurantii, tr. cardam. co. āā. ℥iv.; aq. dest. ℥iij. M. Sumat 4 drachmas 3tiâ vel 4tâ q.q. horâ.

In the bowel affections of children, accompanied with worms, powdered charcoal, in doses of 10 to 15 grains, with one grain of ipecacuanha powder, and from 3 to 5 grains of rhubarb, taken at bed-time, acts like a charm, correcting disordered secretions with certainty and comfort, and promoting a healthy tone and action. In gastralgia and gastrodynia, charcoal powder, in doses of 30 or 40 grains, three times a-day, in water, seldom fails to give relief; and, in cases of severe tenesmus, accompanied by bloody or mucous stools, an injection into the lower bowel of one drachm of charcoal powder in a small quantity of thin arrow-root or gruel has been found to give almost instant relief.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 606.

44.—*Nux Vomica as an Aperient.*—Amongst the conditions over which nux vomica, and its active principle, strychnia, possesses most useful powers, is that of habitual constipation, from muscular atony of the intestinal tube. At the City Hospital for Diseases of the Chest, we observe that Dr. Peacock and Dr. Andrew Clark are both in the habit of frequently resorting to it for this purpose. It is generally given in combination with the compound rhubarb pill, and in doses of the extract of from a sixth to half a grain. Of itself it can, perhaps, scarcely be deemed an aperient,—that is, it does not so much excite peristaltic action, as supply tone to the weakened muscular coat, by which it is enabled to respond efficiently to other irritants. Hence the need for combination with rhubarb, aloes, or some similar drug. Dr. Peacock mentioned to us a case under his care in St. Thomas's Hospital, in which a man of feeble intellect, and torpid nervous system generally, had derived great benefit from its employment. At first, the bowels were obstinately costive, and lavements produced no action; but since the use of the nux vomica (twice daily, gr. ss.) they have so far increased in power and susceptibility, that simple injections are quite sufficient, and procure all the action that is necessary.—*Med. Times and Gazette, Nov.* 10, 1855, *p.* 471.

45.—CHRONIC ULCERATION OF THE RECTUM.

By Dr. Christopher Fleming, Surgeon to the Richmond Hospital.

[A public van-driver, aged 56, had suffered from symptoms resembling chronic dysentery, for five months. His stools were thin and slimy, and were often deeply coloured with dark blood. His general health did not materially suffer; the constitutional symptoms of dysentery were wanting; the abdomen was neither tense nor tender, but his pain was confined entirely to the rectum.]

Proceeding to examine the rectum, I perceived nothing at or about the anus to excite the suspicion of disease within the gut. There was only visible a small external hemorrhoid, but it was of no moment. On now introducing the finger, when it reached to about the second joint, a sensation was communicated, as if the rectum was loaded with hardened fæculent masses, and after the action of a full enema, this same sensation was present. On more close examination I found that this arose from the uneven border of a deep and excavated ulcer which occupied the back wall of the gut; that the circumference of this ulcer was not less than that of a half-crown piece, and that the base of it, when pressed on, was equally hard and irregular, the remaining portion of the bowel being, as far as could be ascertained, perfectly healthy. I admitted this man into the hospital—kept him as much at rest as possible in the recumbent posture, and put him on mild nutritious diet. His bowels were regulated by the exhibition of small doses of castor oil, and occasional emollient enemata; a slight mercurial effect was produced by moderate use of blue pill and Dover's powder combined; this was followed by iodide of potass and sarsaparilla, and hip baths and astringent or anodyne injections were administered as required. At the expiration of a month, an amount of benefit was experienced which was surprising; the local irritation materially subsided; the acts of defecation were stated as being free from uneasiness, and of much less frequent occurrence; the dark, coffee-coloured discharges of mucus and

pus remarkably diminished; and improvement took place to such an extent, that the man, after a month, desired to leave hospital and return to his work. With respect to the ulcer, no satisfactory change was effected, as ascertained by touch—its distance from the anus, and its situation, not admitting of any satisfactory view with the assistance of the speculum. The same local characters remained, it had not apparently increased in extent, but the hardened and irregular edges and surface were distinctly traceable by the finger, yet decided diminution took place in the quantity and quality of the discharge; the former was much less, and the amount of blood in the latter very trifling, and moreover, the man was not disturbed at night as heretofore, and even throughout the day he was, from his statement, tolerably free from annoyance.—*Dublin Hospital Gazette, Dec.* 1, 1855, *p.* 326.

46.—*Case of Piles, in which an operation was followed by a Fatal Result.* By Henry Smith, Esq.—[The patient was a man aged fifty-six, of weak health, and was much troubled with protrusion of the lower portion of the rectum. He suffered so much from this and from a pile about as large as a cherry, that it was determined to remove the pile by ligature.]

A needle was inserted through the base of the pile, which was firmly tied, and then cut away. It was found to consist of cellular tissue, with a large vein in the middle. As no fears of hemorrhage were entertained, the ligature was removed, and the patient for two days appeared to be going on well. At the end of that time, however, symptoms of fever presented themselves, and subsequently swelling in the left elbow-joint, and erysipelas of the hand, thigh, and face. He died at the end of eight days. No post-mortem examination could be obtained, but Mr. Smith had little doubt but that he died of phlebitis, and suggested that nitric acid was a safer and quite as effectual a remedy as the ligature and knife in these affections. He knew that some surgeons of eminence had stated that they had never seen any dangerous consequences from these operations, but numerous fatal cases had undoubtedly occurred.—*Lancet, Feb.* 2, 1856, *p.* 129.

47.—*Treatment of Tænia by the Oil of Male Fern.* By Dr. W. W. Gull, Guy's Hospital.—This indigenous plant, the *Lastræa Filix mas* of modern botanists, has been known as a vermifuge since the days of Dioscorides. About five-and-twenty years ago its efficacy was confirmed by Peschier, of Geneva, in several hundred cases; but it does not appear to have attracted much attention in this country until noticed by Dr. Christison in the 'Edinburgh Monthly Journal' for 1852. In the following year a paper appeared by Dr. Christison in that journal, giving the results of his experience in upwards of twenty cases, in all of which, without exception, the worm was discharged after a single dose. Dr. Gull's cases amply confirm the previous statements of Peschier and Dr. Christison, and show that an indigenous weed equals, if it does not surpass, in efficacy as a vermifuge, the vaunted kousso of Abyssinia, the turpentine of America, or the pomegranate of the Continent. The preparation employed was the ethereal tincture of the rhizome, in doses of from one and a half to two drachms, in a mucilaginous draught occasionally followed by a saline laxative; which last, however, Dr. Gull does not consider necessary. In all Dr. Gull's 50 cases, as well as in many others treated by his colleagues, the remedy proved effectual. One patient had been labouring under tapeworm for eleven years, and had taken kousso six times. In 25, or one-half of the cases, we find the period mentioned which intervened between the administration of the drug and the expulsion of the worm. The average of all the cases was five hours and three-fifths. In eight out of 20 cases the head of the worm was found. There can be no doubt, then, of the efficacy of the male fern as an anthelmintic; but we still want information as regards the permanence of the cure which it effects. In five only of Dr. Gull's cases are we informed that the cure *was permanent*, whereas in six cases we are told that the worm returned within a *short period.*

With regard to the locality in which the patients lived, all came from low-lying districts on the south banks of the Thames. As to sex, 27 were females, 14 males, and 9 doubtful, but probably females; this would make 36 females to 14 males. As to age, 11 were under ten years, 6 from ten to twenty, 14 from twenty to thirty, 11 from thirty to forty, and eight above forty.—*British and Foreign Med.-Chir. Review, April, p.* 307.

URINARY ORGANS.

48.—ON PURULENT URINE FROM CHRONIC PYELITIS.

By Dr. W. R. Basham, Physician to the Westminster Hospital.

The value of the information to be derived by examining the chemical and microscopic character of the urine depends much on the care and accuracy with which these chemical and microscopic facts are applied to the condition and symptoms of the patient. The special characters of these deposits, if correctly interpreted, become highly significant and instructive, great aids to diagnosis, and the eventual basis of treatment. The cause and nature of a dropsical condition of the system are at once recognised, when in albuminous urine there are found epithelial, fibrinous, or waxy casts of a tubular character, glandular epithelial cells loaded with fat, or blood discs with amorphous fibrin, stained with hæmatin. The pathology of dropsy with such concomitants differs materially from that in which the urine is free from such deposits. But, on the other hand, cases occur in which there is no dropsy—no anasarcous state, yet the urine contains albumen, to which is added the presence of pus corpuscles, minute membranous coagula entangling clots of blood, blood discs in abundance, and shreds of amorphous fibrine. If, in such cases, there be great irritability of the urinary organs, frequent micturition with pain referred to the neck of the bladder, perineum, or penis, a suspicion at once exists of disease of the renal organs very different in character from that which we predicate on the first example. It is, however, only by a cautious comparison of the symptoms experienced by the patient with these morbid products in the urine that a correct and satisfactory diagnosis can be obtained. The presence of pus corpuscles in the urine is not, alone, sufficient to induce suspicion of renal disease. In gonorrhœa, or other inflammatory affections of the urethra, in catarrh of the bladder, or gouty inflammation of this viscus, pus would be present in the urine. In stricture, in chronic gleet, membranous *debris*, often entangling minute clots of blood, may be, and often are, present, and yet no suspicion of renal disease from any such appearances would be warranted. It is therefore by a careful comparison of the sedimentitious matters in the urine with the general symptoms of the patient that we are enabled to arrive at a correct and intelligible diagnosis. I have been led to these remarks by reflecting on the cases of pyelitis, or inflammation of the pelvis of the kidney, which are now in Burdett ward, believing that an interpretation of the means by which this diagnosis has been arrived at may be instructive and valuable.

The symptoms most characteristic of pyelitis are, rigors, with lumbar pains, sometimes dull and continuous, sometimes pungent and darting; often extending and becoming fixed at the crest of the ilium, or prolonged to the outside of the thigh, with numbness in the direction of the external crural nerve. Occasionally there is retraction of the testicle of the same side; there is frequent micturition, and great irritability of the urinary organs. The patient complains of pain in the perineum, or in the neck of the bladder, or feels a darting pungent sensation along the urethra, fixing itself in the glans penis till temporarily relieved by passing urine; the quantity passed rarely exceeds one or two ounces, and the urgency for passing this small quantity recurs at very short intervals of time. The pain in the bladder, perineum, or penis, is always relieved by micturition, and there is no difficulty or obstacle to the free passage of the urine.

The urine when first passed is cloudy, or even milky, but when set at rest, separating into two portions, an upper, clear, natural-coloured fluid, not ropy, but containing albumen; a lower and distinct sediment of a yellowish colour, consisting of pus corpuscles, amongst which oftentimes may be seen minute fibrinous shreds or

membranous flocculi, with small coagula of blood attached. Earthy amorphous matter is also present in some cases. Hæmaturia, sufficient to cause discoloration of the urine, may or may not have occurred; yet, in most cases, although the urine is not discoloured, scattered blood discs may be detected by the microscope.

If the disease be of a certain duration, there may be fulness and enlargement of the kidney of the affected side; for if a concretion becomes permanently fixed in the pelvis of a kidney, a partial obstruction of the ureter follows, and the usual conditions of an encysted and sacculated kidney have commenced. If, on the other hand, the calculus descends into the bladder, a train of symptoms sufficiently characteristic follows, which clearly indicate its descent into that cavity. The following case exhibits the symptoms of chronic pyelitis:—

W. M——, aged thirty-four, a groom, native of Suffolk, was admitted into Burdett ward. The ward-book states that he first began to complain, about three months since, of a sharp, pungent, fixed pain, in the right lumbar region, which was followed by sensations as of extension of the pain downwards, in the direction of the bladder. At this time he passed his urine very frequently, and noticed that there was much sandy deposit in it. The pain and distress were always greatest before passing urine. After the gravel disappeared from the urine his symptoms became much aggravated, and he sought medical aid. He has never had rigors, nor has he known his urine to stop suddenly. On admission, his appearance did not indicate any amount of constitutional disturbance. He was of a spare habit of body, with the usual characteristics of those engaged in stable work. His chief symptoms related to the pain he suffered in the perineum and neck of the bladder, the frequent micturition, and the want of continuous sleep. The urine, when first passed, is cloudy and milky in appearance; it soon separates into two portions—an upper, pale, clear, lemon-coloured fluid, and a lower yellowish-white precipitate. The first is neutral to test paper, and is albuminous; the second presents before the microscope the usual characters of pus corpuscles. The bladder was examined, and there was no evidence either of calculus, stricture, or prostatic disease. The patient was stripped and a careful examination made of the abdominal and lumbar regions. No want of symmetry, no fulness, nor irregularity in the region of either kidney could be detected; deep-seated pressure caused pain in the region of the right kidney, extending, the patient says, downwards in the direction of the bladder. The tongue is clean, the appetite natural, and the bowels are relieved daily. The patient, when closely questioned, adheres to his first statement, that the pain and distress he experiences gradually acquire intensity till the urgency to pass urine can be no longer restrained; that he rarely passes more than a table-spoonful, or at most a wine-glass, in quantity at a time; that relief immediately follows, but that uneasiness commences some fifteen or twenty minutes afterwards, and rapidly becomes worse till micturition again relieves him. He was ordered to be cupped, to be kept quiet, to be placed on a bland and simple diet, and the infusion of buchu to be taken three times daily, and an opiate at bedtime. A few days after admission a few membranous shreds, entangling a minute speck of blood, were observed amongst the purulent deposit. The patient stated that he had, in the earlier stage of the complaint, noticed similar appearances. The clear portion of the urine continued albuminous, and the sediment, in addition to the pus corpuscles, exhibited a few blood discs with numerous amorphous shreds of fibrine stained with hæmatin. There was much lumbar pain, and great increase of distress before micturition. Cupping relieved these symptoms, and he was ordered linseed tea and tincture of henbane, which also seemed to mitigate the symptoms; he also has experienced relief, he thinks, from the warm bath, which he has used each night before bedtime. The diagnosis of the case rests on a comparison of the chemical and microscopic characters of the urine with the symptoms and sufferings of the patient; and we have sufficient evidence to establish the opinion that it is a case of chronic pyelitis, originating in a calculus impacted in the kidney. The troubled, turbid, milky urine, containing albumen and pus, clearly indicates some morbid irritation in the urinary apparatus, and the pain and uneasiness in the perineum and bladder, and the frequency of micturition, justify the limits of our inquiry in this region.

But we have to interpret from these symptoms the part of the urinary apparatus which is the seat of the disease, for these conditions, in some respects, are common to many different disorders; yet if they be carefully analyzed, and a just

comparison established between the one and other, we shall ultimately arrive at a correct diagnosis of the disease. Turbid troubled urine, with painful and frequent micturition, may occur in stricture, gleet, or gonorrhœa; but, in the two latter, the character of the pain during the passage of the urine, and the appearance of discharge at the orifice of the urethra, not to say the stains on the linen of the patient, would make the case sufficiently clear. In stricture, in addition to a turbid urine, when gleet is present, there may be membranous shreds, and even minute coagula, such as have been noticed in the urine of the patient under consideration. But, in such a case, the pain and distress are felt during micturition, not before; the urine passes with difficulty, or in drops, or in a diminished stream, and an exploration of the urethra proves the impediment to the free excretion of the urine. In calculus of the bladder, similar conditions of the urine might exist, and much pain be experienced in the bladder, perineum, and penis; but the pain in such cases is most aggravated after micturition; as the bladder fills the pain diminishes; just the reverse happens in the painful and irritable bladder of renal disease. Moreover, an exploration of the bladder establishes the presence of a stone. In the case before us, the patient refers the commencement of the pain to the region of the kidney, and describes the pain as if descending thence in the direction of the bladder, and becoming pungent and stabbing in the perineum, and occasionally extending itself to the extremity of the glans penis. These distressing sensations are always relieved by micturition, and there is a temporary lull till the urine collects again, even in small quantity. This fact is of much importance in the diagnosis of renal disease, and taken in conjunction with the history of the case, with the albumen and amount of the purulent sediment in the urine, and the peculiar character of the lumbar and regional pain, constitutes very fair evidence of inflammatory action in the pelvis of the kidney.

In cases of inflammation of the bladder, cystitis or catarrh of the bladder, and limited to that cavity, the character and quality of the urine differ much from what is execreted in renal disease. The urine is contaminated by the inflammatory exudation from the vesical mucous membrane; pus cells, and the so-called exudation corpuscles, are present in abundance; but the pus corpuscles do not subside as a distinct and well-defined precipitate, they are entangled in a ropy magma, in which numerous crystals of the triple phosphate are visible; this viscidity and these crystals being rapidly developed by the agency of the alkaline urine always voided in inflammation of the bladder. This character of the urine will suffice to distinguish vesical from renal inflammation.

The ready separation of a turbid or milky urine into two parts, a clear supernatant portion containing albumen, derived from the liquor purus, and a sedimentary portion of pus corpuscles, distinctly precipitated, voided by a patient who suffered from severe regional pain either in the kidney or bladder, perineum or penis; and if, in the first-named position, aggravated by pressure or motion, or when, in the latter parts, relieved temporarily by micturition, and in whose urine gravel, or blood, or both, had been previously, or at some antecedent period, present, in such a collection of symptoms there should be little hesitation in referring them to a chronic inflammation of the pelvis of the kidney.

After the patient had been in the hospital a fortnight, the quiet, the diet, the effect of warm baths, opium, and local depletion seemed to have produced a certain beneficial effect. Micturition was less frequent, the pain was less urgent, and the bladder consequently retained the urine in a larger quantity. This interval also enabled us to observe further indications of this disease. The pain in the region of the right kidney, or rather in the right lumbar region, is modified or aggravated according to certain positions. Thus he is easy, comparatively, while he is laid flat on his back, but the pain commences when he turns on either side, and continues so long as he remains in that position. In lumbago, there is severe pain in the loins; this pain is aggravated by motion, the rising in bed, the turning from one side to the other; but it subsides so soon as the body is at rest, in whatever position that may be. We find it stated in the ward-book, that in the third week of his treatment the urine on one occasion was observed to be quite clear, free from albumen, free from any notable deposit or sediment, and presenting only a few scattered pus corpuscles when examined by the microscope; but that the next day, after an aggravation of symptoms, the urine became turbulent and purulent.

to a degree equal to what it had been previously. This state of things justifies still further the diagnosis, and aids us in the opinion that only one kidney is affected. It happens, in these cases, not unfrequently, that a temporary suppression, or rather retention of the purulent secretion from the pelvis of the kidney, is caused by the obstacle impacted in the outlet either receiving some fresh addition to its bulk, or some temporary pressure made on the contents of the kidney closes up the small aperture in the head of the ureter, through which the purulent fluid from the kidney passed into the bladder. It follows, the other kidney being free from disease, that the urine secreted will present no morbid conditions. This is the right interpretation of such specious symptoms, which rarely endure for more than a few hours; and the advice of Rayer, writing on this form of disease, is fully confirmed, that we should never be satisfied with an examination of urine passed at one single interval of the day, but in all such cases specimens should be seen of each act of micturition. Further depletion was not thought desirable, and the patient, in the fourth week, was placed on the sesquichloride of iron. His symptoms remained much the same—occasionally severe paroxysms of perineal pain, with much irritability of the bladder, and abundant purulent deposit in the urine, and then a few days of comparative freedom from renal distress. At this period, he complained on one occasion, early in the morning, of an attack of more than usual severity, commencing with violent throbbing in the right lumbar region, with a piercing, darting pain in the perineum, and after some little trouble in passing the last part of a small quantity of urine, he found a membranous film protruding from the orifice of the urethra, which he only partially succeeded in drawing out. He described it as like jelly. In the course of the day, a further portion was passed. During the remainder of his stay in the hospital, this symptom did not recur. This gelatinous kind of exudation has been noticed in analogous cases.

In the treatment of these cases our chief reliance must be placed on the palliative agency of opium. If it be a case of calculous pyelitis—that is, chronic inflammation of the pelvis of the kidney arising from the irritation of the calculus impacted therein, it is quite obvious that so long as the irritating agent remains, so long will the symptoms of chronic inflammation continue. We have no remedies that can either dissolve or remove such a concretion, and the progress of the case must ultimately depend on the form and composition of the calculus, some of which escape into the bladder, with symptoms characteristic of their descent through the ureter, and, if their diameter be but small, may be excreted through the urethra; this is more likely to happen in the female. This small concretion now before me excited renal inflammation, and gave rise to purulent urine; violent colic pains suddenly arose; there was most urgent retching and vomiting, and the concretion reached the bladder. A few days after the subsidence of these symptoms, the patient's urine suddenly stopped, and after a few distressing and painful efforts of straining was ejected with violence, and a hard substance fell into the vessel. Fortunately the patient was in his bed-room, and the calculus was preserved. It does not exceed a pea in size, is very jagged on the surface, and glistens from the deposit of crystals of triple phosphate on its circumference, but its composition internally is oxalate of lime. This happened seven years ago, and the patient has never had any renal symptoms since. These numerous concretions and earthy *débris* are also from the kidney: they were passed eight years since with symptoms of pyelitis. The patient is living, and enjoys moderate health. These are the most favourable terminations to renal calculus. In other cases the calculus having escaped the kidney, lodges in the bladder, and gives rise to the usual symptoms, relief from which can only be obtained by the assistance of a skilful surgeon. But in by far the more numerous cases of calculous pyelitis, the concretion grows by the apposition of fresh matter, becomes impacted in the head of the ureter, does not completely occlude the outlet, but becomes branched and irregular in shape by the constant deposit of phosphatic matter derived from the action of alkaline purulent fluid on the urine, still secreted by the intact part of the kidney; the fluid retained in the pelvis of the kidney is constantly exerting a dilating influence, and in the progress of the case a renal tumour is felt, distinctly fluctuating; and if the history and symptoms of such a case be carefully collated, the diagnosis is not difficult. *This preparation* of a branched and ragged calculus impacted in the pelvis of the

kidney, with a sacculated condition of the organ, illustrates these remarks. It must be clear that medicinal remedies can exert no curative influence in such a case. To palliate and relieve must be the limit of our aid.

In the case which has formed the subject of these remarks, you have seen that perfect quietude, the warm-bath, cupping on the loins in the early period, and opiates, were the agents through which partial relief was obtained. The buchu, the sesquichloride of iron, and the nitro-muriatic acid, although severally administered, cannot be said to have done anything for the relief of the patient. He was made an out-patient six weeks after admission, and on October 2nd, ten weeks from the period of his discharge, his urine remained the same, and his symptoms were unchanged, so far as the report of his wife can enable us to judge.—*Lancet, November* 8, 1855, *p.* 408.

49.—*Oxalate of Lime and Urate of Ammonia, in a Combined Deposit, showing the necessity of Dissolving out the Urates.*—[The following may be worthy of the attention of young microscopic manipulators.]

Having lately been much employed in the examination of a patient's urine (the urina sanguinis), I discovered the oxalate of lime in great abundance in the semi-transparent deposit. This continued for some time. I then requested to be brought me urina chyli, which when brought had always a copious deposit of urate of ammonia, and now, by the microscope, I could only detect a few crystals of the oxalate. This passed on for a few days, but, as the crystals were very large, I was then led to suppose there were more obscured by the opaque urates. (In fact, I had hoped the enemy was retreating.) I therefore placed a drop of the urate sediment on my glass slide, and by the aid of Highley's dropping bottle (which, by-the-by, is very useful), let fall a drop of liq. potassæ. My field was now quite clear, and in the place of only three or four, I found nearly as many as in my earliest examinations; in fact, they had been obscured by the opaque urates.

I am going down the hill, but if I can remove a hindrance from those who are climbing up, I would wish to do so. What I intend to convey, then, is this—that where oxalates have been found, to form a correct estimate when urates supervene, is is necessary to dissolve out the urates, as I have just shown.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 595.

50.—SACCHARINE URINE OF LOW SPECIFIC GRAVITY.

By B. Wills Richardson, Esq., Dublin.

[This occurred in a sample of urine which had been sent some distance; the quantity of sugar present did not affect its specific gravity, being as low as 1·017. This is very rarely met with. Dr. Prout mentions having seen it as low as 1·015; but in addition to the sugar in this case, there were a large quantity of torulæ present, a few crystals of uric acid, and no albumen.]

The tests I had recourse to in examining the urine were Moore's, Trommer's, and Maumene's. It may seem superfluous to say anything here relative to the mode of applying these, but still I venture to do so, because there is some nicety required in applying the tests of the two latter gentlemen. In case, for instance, we meet with a specimen of urine containing torulæ, and of a low specific gravity, as in the above one, it will be at once evident that the quantity of sugar present cannot be considerable.

In using Trommer's test, therefore, we must not add much of the solution of sulphate of copper; in fact, the urine should be barely coloured with it, because—for the reason mentioned by Mr. Bowman—if too much of the sulphate of copper is added, the suboxide of copper "might be mixed with the black oxide (the sugar being capable of reducing only a certain definite quantity), which would, more or less, mask the characteristic colour and appearance of the suboxide."

There is a discrepancy between Heller's reading of Trommer's directions for using his test, and the translations of them by the generality of writers on urinary pathology, the former writer stating that Trommer's directions are, to "add a

solution of sulphate of copper to the urine in a test tube, until an intensely green colour is obtained. I think, however, for the reason above given, that Dr. G. Bird's and Mr. Bowman's directions are the best to follow, particularly if we have only a small quantity of urine to operate on.

Perhaps it would be better for those who are not in the habit of pursuing investigations of this kind to try Kletzinsky's fluid (composed of potash, glycerine, and saturated solution of sulphate of copper); I have used this test within the last few days, with some diabetic urine (specific gravity, 1·045), from a patient under the care of Dr. Law, and found it both convenient and easy of application. On adding a few drops of the fluid to the diabetic urine in a test tube, and boiling the mixture, it became of an opaque amber colour, with a tint of orange red by transmitted light, but on mixing nearly equal parts of it and the diabetic urine, and then boiling, the reduction of the copper was rapidly effected, but it had not the intense red cupreous colour of the deposit caused by Trommer's test with another portion of the same urine. On boiling some of Kletzinsky's fluid with non-saccharine urine, a whitish flocculent deposit makes its appearance in the blue solution, which has a slightly olive colour by transmitted light.

There is another test (Maumene's) relative to which I wish to say a few words. This test is founded on the circumstances of the power of sugar in reducing the salts of tin, or, as Mr. Bowman explains it, the "sugar is decomposed, and a brownish black compound, resembling caramel, is produced." Narrow slips of white merino, or any other *woollen* tissue, are soaked in a solution of bichloride of tin, and then carefully dried in a water bath. Now, if we are not most careful in applying these test-cloths, for the detection of sugar, they may lead to error. This is owing to the readiness with which white woollen textures scorch, and thus become of a browish black colour, when there is no sugar whatsoever in the question.

The pieces of white merino, after being saturated with the suspected urine, should be also dried in a water bath, for if held over a lamp, or before a fire, it will be difficult to avoid the scorching, as just mentioned. If sugar be present, the test cloth will become of a dark brownish, almost black colour. When carefully applied this is a very accurate test for sugar, but in my hands it was not so delicate as I was at first led to expect (M. Maumene having stated that the prepared merino will detect the traces of sugar in a mixture composed of ten drops of diabetic urine and half a pint of water), for I found that a mixture of one drachm of the diabetic urine (Dr. Law's specimen) and two ounces of distilled water gave no evidence of the presence of sugar with the prepared merino, and it was not until I had arrived at the proportion of two drachms of this urine to the same quantity of water, that there were any indications of the presence of sugar, but of course, not to the same extent as the undiluted urine. Let it be understood that I am not so presumptuous as to imagine that I may not have erred in my manipulation of Maumene's test. I took every precaution, however, to avoid error, and I procured the bichloride of tin at one of the most respectable pharmaceutical houses in this city.

It is of importance, as Mr. Bowman mentions, not to use either cotton or linen for Maumene's test, because these substances being analogous to sugar in composition, are similarly decomposed when warmed with the bichloride of tin.

In testing the specific gravity of urine, it is necessary to see that the urinometer is accurate. These instruments are often very incorrect, so much so as to give rise to an error of eight or ten degrees in the reading. Dr. Beale has drawn attention to this point; according to this gentleman, the "degrees marked upon the stem should gradually diminish in length from above downwards. If they are equal, the instrument may at once be pronounced as incorrect, without resorting to an experiment." I have myself seen urinometers, so graduated, give an error of five degrees in the reading.

Since the foregoing was put in type, I have seen Dr. Hassall's interesting paper on the development of torulæ in urine. From his investigations, it appears that two different species of fungus may be met with in the urine. One resembles the Penicilium glaucum, and the other is the true sugar fungus, and is identical with *the Torula* cerevisæ, or yeast plant. The Penicilium may be developed in either *non-saccharine* or saccharine urine, but the latter only occurs in urine containing

sugar. They may, however, co-exist in the same saccharine urine. The Penicilium is frequently seen in acid albuminous urine.

For further information on this point I must refer to Dr. Hassall's memoir, in the thirty-sixth volume of the Medico-Chirurgical Transactions.—*Dublin Hospital Gazette, Jan.* 15, 1856, *p.* 372.

51.—*Rapid Detection of Sugar.*—M. Botte has several times employed the method suggested by Liebig of quickly detecting sugar. A small quantity of ox-gall is dissolved in the suspected fluid in a test-glass, and a quantity of concentrated sulphuric acid equal in amount to that of the fluid in the glass is rapidly added, care being taken to pour it along the side of the glass. If sugar is present a beautiful purpurine is immediately produced.—*Rev. Médicale, June, p.* 685.—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

52.—ON THE CONNEXION BETWEEN BRONZED SKIN AND DISEASE OF THE SUPRA-RENAL CAPSULES.

By Dr. Addison, Senior Physician to Guy's Hospital. (Reported by J. Hutchinson, Esq.)

The Senior Physician of Guy's Hospital has recently added to the list of benefits which medical science had already received at his hands, by the publication of a monograph on the "Diseases of the Supra-renal Capsules." In this work, Dr. Addison, as probably most of our readers are aware, advances the opinion, that destructive disease of these hitherto little-regarded organs is attended by most serious constitutional mischief. His views, which are, indeed, the simple expression of his clinical experience, and are supported by 11 carefully narrated cases, may be concisely expressed as follows:—1. That a peculiar browning or bronzing of the skin is indicative of disease of the supra-renal capsules. 2. That it may depend on any disease which affects the disorganization of these bodies, *e. g.* cancer, tubercle, abscess. 3. That patients suffering from this symptom fall gradually, and without obvious cause, into a peculiar form of debility, which results almost invariably in death within a limited period. 4. This form of debility is rarely attended by much emaciation, and the subject of it, although with much flabbiness of tissue, retains throughout a general bulkiness of frame which contrasts strongly with his extreme feebleness. 5. That, usually, no other important visceral complication supervenes.

Should these conclusions prove to be correct, it will be seen that we have an important and well-characterized disease added to the nosological list. Here is a train of peculiar symptoms and events originating in a morbid state of an organ of the pathology of which, hitherto, nothing has been known, and whose functions, whatever they may be, have been deemed of but little importance. Dr. Addison's facts are as yet only 11 in number, and although they all support the conclusions indicated, yet that they are not sufficient data to set at rest so important a question, few, we suspect, would be found more willing to admit than himself.

[From the great number of cases which have been well marked and well observed, we may assume that the theory is now well grounded. The supposed exceptional cases which have been recorded only prove the validity of the connexion between them.]

Symptoms attending Diseases of the Supra-renal Capsules.—1. *Change of colour of the skin.*—The term "bronzing" probably conveys as good an idea of the exact character of the appearance assumed by the skin in this disease as could well be given. It resembles strikingly the colour of a bronzed statue from which the gloss has been rubbed off. Pressure has no effect in causing its diminution. It seems as a rule to commence first in patches with ill-defined borders, on those parts most exposed to the sun and to friction, the neck, the backs of the hands, the fronts of the thighs, the arms, &c. Around the nipple, and in other parts where pigment naturally abounds, it is generally well marked, while others, possessing little or *no pigment originally*, as the palms of the hands, the ungual

matrices, &c., remain as pale as ever. This tendency to show itself in patches, is strongly in support of the belief that the change is really one of deposit of pigment; which derives further confirmation from the circumstance, that in not a few cases the punctate or even patchy deposit of black matter was observed in the mucous membrane of the mouth, and in the serous investment of the abdominal viscera. The conjunctiva usually remains pale and pearly, a condition which well distinguishes true bronzing from the various states of jaundice. The changed colour of skin, although most important for purposes of diagnosis, is probably of very minor consequence among the other departures from health which attend renal capsular disease.

2. *Debility.*—Next to the bronzing of the integument the extreme and peculiar feebleness manifested appears to be the most striking of the symptoms. Without any evidence of thoracic disease, without any great loss of flesh, the patient becomes liable to faintings, loses energy, is unable to exert either body or mind, and, in short, appears to be on the point of death from sheer weakness. In almost all the cases comprised in the Table this state of things was very well marked. In cases 14 and 15, however, the loss of strength had not proceeded *pari passu* with the change in the tint of the skin, and appears to have attracted attention only for a few days prior to the fatal event.

3. *Emaciation.*—That there has generally been observed a want of correspondence between the extreme debility and the degree of emaciation coincident with it, seems evident. Several of the patients are described as having remained muscular and fat up to the very last. In almost all, however, there had been some loss of flesh, and in many it had even been considerable. Dr. Addison's observation, that flabbiness of the solids rather than actual wasting is characteristic of the condition, seems true of the majority of cases.

4. *Anæmia.*—In almost all cases, there would seem to have been present great depravation of the coloured constituents of the blood, as manifested by the pallor of those parts not involved in the bronzing, the general flabbiness of the muscles, the pearly state of the conjunctiva, &c. In two only (cases 3 and 13) was the blood examined with the microscope, and in both those it was found to be loaded with white corpuscles. To the impoverished state of the blood is, no doubt, to be referred the breathlessness on exertion, the debility, the feebleness of the heart's action, and perhaps also the irritability of the stomach.

5. *The pulse.*—With a few exceptions, in which it became rapid, the pulse has generally been of but average frequency, and peculiar only in its extreme softness and compressibility.

6. *The tongue.*—It does not appear that any state of the tongue other than that common to most conditions of debility has been observed in connexion with this disease.

7. *Dyspepsia.*—In almost all cases prior to death, and in many for protracted periods, great irritability of the stomach was present. In most there was loss of appetite, more or less persistent nausea, and occasional vomiting, with pain and sense of sinking at the epigastrium. In the majority, it would seem that the bowels have been costive rather than otherwise, while, in a few, attacks of diarrhœa had occurred. In several instances the patients had been liable to "biliousness." Much more detailed observations as to the symptoms of indigestion present are desirable.

8. *The Urine.*—The urine was tested for albumen in many of the cases, and in some for sugar; but in no instance was any important departure from its normal constitution observed.

9. *Lumbar Pain.*—Aching, more or less severe, in the back or loins, was a symptom present in a considerable proportion of the cases. In two of these there was, however, disease of the vertebræ, by which it might have been occasioned; and the evidence respecting it is not such as to induce us to attach much importance to its signification.

10. *Nervous Symptoms, Convulsions, &c.*—Symptoms referable to disorder of the cerebro-spinal functions occurred in several of the cases. In three, epileptiform convulsions preceded death. In one, failure of memory, and remarkable change in temper, was observed; and in a second, numbness of the fingers, legs, and the tip of the tongue, had been present. In one, the man had suffered from *tic douloureux*.

11. *Odour of the Body.*—In two cases, both under care at the Brighton Hospital, it was noticed that a peculiarly disagreeable odour was exhaled from the patient's body. In one this was present for a few weeks, and in the other only for a few days prior to death. The phenomenon is not mentioned in the reports of any other case in the series, and Dr. Addison informs us that it was not noticed in any case under his observation.

Such, then, appear to be the more important of the train of symptoms observed in connexion with this disease. It is, necessarily, as yet, from the paucity of facts, meagre and inexact, but the general features of the group are, nevertheless, well characterized, and would seem to have been present with tolerable uniformity.

Mode of Death.—In only a small proportion of the cases included in our series has the exact mode of death been recorded. In several the death is stated to have been that of exhaustion. In some, a peculiar form of collapse, without obvious cause, preceded it, while, in two or three others, this collapse followed very slight, and usually inefficient, causes, such, for instance, as the action of an aperient dose. In one the collapse was so extreme, and had supervened so suddenly, that poisoning was suspected. In one the patient died of pericarditis with pneumonia; and in another, a torpid condition resembling that of typhus preceded death. In three, convulsions had been present. Speaking generally, we may say that the phenomena attending death are those of utter prostration of the vital powers, not unfrequently complicated by disturbance of the nervous functions.

Diagnosis.—The combination of a bronzed state of the skin with great systemic debility may be held indicative of disease of the supra-renal capsules; and the more marked these conditions are, the more positively may the opinion be formed. A differential diagnosis may sometimes be requisite, however, as regards the following diseases: 1. *Jaundice.*—In some states of chronic jaundice the skin may be brown rather than yellow, and great vital depression may exist. Here, however, the conjunctiva and the matrices of the nails would, by their discoloured state, prevent the possibility of deception. The tint in jaundice is also a diffused one, and does not occur in patches, as in true bronzing. 2. *Browning from exposure to sun, &c.*—In these, the examination of parts protected by the clothes would generally be sufficient to prevent error. 3. *Pityriasis versicolor.*—The patches of pityriasis versicolor sometimes remarkably resemble those of the bronzed skin. Their limitation to the abdomen and chest, their defined outline, their furfuraceous surface, the slight itching which attends them, their contagious character, and above all, the microscopic examination of the cuticle, furnish, however, abundant means by which to distinguish between the two. 4. *The diffused brown muddiness of some other cachexiæ.*—The dark areola round the eye, so often seen in states of disordered menstruation, is in rarer cases found coincident with a loss of healthy tint in the skin generally, which assumes a dirty, sallow, brownish appearance. This, in exaggerated instances, might be mistaken for bronzing; and, indeed, we are not sure that cases 21 and 26 in the series are not examples of this mistake having been committed. It would be premature, indeed, to assert that this state may not have something to do with functional, and perhaps transitory, disorders of the organs, upon structural disease of which the states of more extreme discoloration are found to depend. We have, however, no positive evidence that it does so. In the meantime, it should be borne in mind that in all cases, in which bronzing is to be held as positively indicative of diseased capsules, there ought to be traces of patching and mottling in some parts, and that in proportion as the tint is equally diffused over the whole body is the diagnosis doubtful.

Prognosis and Treatment.—We have as yet no reason for believing that in cases of true bronzing of the skin, the physician can do other than give the most unfavourable prognosis. No recovery has yet been recorded, nor, indeed, has even temporary improvement under treatment been very marked in any case. After such an avowal it may, perhaps, seem superfluous to speak of treatment, since in our search for principles to guide us in it, we can avail ourselves only of that very delusive light which pathology furnishes. There seems, however, reason for believing, that the morbid changes to which the supra-renal bodies are liable are most of them more or less closely allied to inflammation; and from this fact one might, perhaps, be justified in selecting remedies from the class of drugs known to possess influence over *that* process. The exhibition of a course of mercury (in

very small doses), or the use of the iodide of potassium, the patient's strength being meanwhile supported by a nutritious but non-stimulating diet, would probably be the most rational practice which could be suggested for a case of bronzed skin. As the change in colour is, however, only produced, in all probability, after the organic disease has considerably advanced, there would not, it is to be feared, be much to be hoped for in the way of restoration of function.

Morbid Anatomy.—The cases recorded show examples of the following conditions of disease in the supra-renal bodies. A remarkable symmetry of disease appears to have existed in all excepting the cases of cancer.

1. Acute and recent inflammation ending in abscess. 2. Atrophy with fibro-calcareous concretions. This condition appears to have been present in seven cases. In some of them cysts existed, and in several a fluid matter resembling pus was contained in the cysts, and bathed the solid fibro-calcareous concretions. These changes probably result from inflammation of chronic character. The complete disorganization of the viscus is usually effected, and in all cases recorded both glands were involved. 3. The conversion of the viscus into a sort of fibroid structure, with great enlargement and induration. This occurred in two of the cases, and in both all trace of healthy tissue was lost. 4. The deposit of tubercle. In three instances masses of deposit resembling tubercle were observed, and, coincidentally, great enlargement of the organ and loss of normal texture. In two the deposit existed in both organs, and in one there was no tubercle in other viscera. It may be doubted whether the deposit is not really more nearly allied to some form of fibrinous effusion, the result of inflammation, than to true tubercle. 5. *Cancer.*—In six cases the deposit of cancer has been observed. In all it was secondary to the same disease in other organs. In four it affected but one organ, and in two both were involved. In but one was disorganization of both effected.

Theory of the disease.—The observations of Addison, although they may not as yet have resulted in discovery of the function of the supra-renal bodies, have certainly proved them to possess some very important one. We see their destruction followed in every case by extreme constitutional disorder, loss of strength, depravation of the blood, failure of digestive power, a peculiar tendency to pigmentary deposit, and finally, by the death of the patient, in spite of all measures for his relief. By whatever morbid change that destruction has been effected, whether cancer, tubercle, or inflammation, the same sequences appear to result, and it would seem that we are fairly authorized in classing them as consequences on it, and not as mere coincident effects of some other cause. Taking these facts in connexion with the observations of anatomists as to the very large supply of nerves received by the supra-renal bodies, and the great similarity of certain of their so called "gland cells," to those of nerve ganglia, the conjecture that these viscera are in some way very closely associated with the organic nervous system, seems to have much in its favour. Supposing them to exercise a presiding influence over the functional efficiency of some of the viscera of the abdomen, it is easy to see how fatal lesions of health might ensue on their destruction. Dr. Gull has pointed out the close resemblance between the pineal gland and the supra-renal bodies in minute anatomy and also in liability to calcareous deposit, and the idea seems to well merit attention.

We shall venture to conclude this report by a few words on what appear to us as

Desiderata in the further prosecution of the inquiry.—1. With regard to the cases of *Bronzed Skin.* It is desirable that in all cases in which any approach to bronzing is observed the detailed notes should be preserved, having especial reference to the following points:—*a.* The degree of discoloration, the parts affected by it, the parts retaining their healthy hue, the state of the mouth, conjunctiva, &c. *b.* The history of the alteration in colour, when it first occurred, &c. *c.* The patient's previous state of health. *d.* The patient's present health as to emaciation, debility, dyspepsia, symptoms of nervous disorder, &c. *e.* The condition of the excreta. The urine should be carefully examined, and the fæces inspected from time to time. *f.* The state of the blood, both by microscope and chemical analysis. *g.* The presence or absence of any peculiar odour from the patient's body. *h.* The abdomen and thorax should, of course, be submitted to physical exploration, and

the exact order of sequence of the various symptoms should be carefully examined into.

2. With regard to the *supra-renal capsules*.—It is desirable that henceforth it should become the practice of pathologists to inspect these organs in all post-mortems without regard to the cause of death. If appearances suspicious of disease are found they should be minutely described, regard being especially had to the extent to which the natural structure of the viscus has been destroyed. As yet so little familiarity with the very different appearances which the capsules may present in a state of health prevails, even among experienced morbid anatomists, that great caution will be necessary to prevent mistakes. Whenever doubt is felt, the specimens should be submitted to the inspection of some more practised observer —an end which, we may suggest, would be well obtained by bringing them before a meeting of the Pathological Society.

3. In the publishing of cases, it is desirable that much more of detail should be given than has been done in most of those hitherto recorded. More facts are wanted, but these facts must have the stamp of accuracy and exactitude, or they will be comparatively valueless. That the important field of investigation, to which Dr. Addison has attracted the attention of the profession, will be cultivated with zeal, we cannot doubt. Great care, however, as well as zeal, will be requisite. —*Med. Times and Gazette, December* 15, 1855, *p.* 593; *and March* 22, 1856, *p.* 281.

SURGERY.

AFFECTIONS OF THE BONES AND JOINTS, &c.

53.—DISLOCATION OF THE FEMUR—REDUCTION BY THE FLEXION PLAN.

Communicated by R. P. Jones, Esq., House Surgeon to the Taunton and Somerset Hospital.

[The subjoined narrative gives another good illustration of the superior efficiency of the modern plan of reducing dislocations of the femur. The patient was a strong athletic woman seven months advanced in pregnancy. She was admitted under the care of Mr. Welch, July 28th, eight hours after having fallen from a height of about sixteen feet.]

The right lower limb was found extended, and away from its fellow; it was two inches longer than the left, and the foot was slightly turned inwards. The pain in the hip was excruciating. Having put her under the full influence of chloroform, another attempt was made in the usual way to reduce it. This was also unsuccessful, but the thigh was now somewhat more easily flexed on the abdomen. She was subsequently again put under the full influence of chloroform, and Mr. Welch now succeeded in reducing the dislocation in the following manner:—The thigh was flexed on the abdomen as far as possible, and the upper end of the femur was pulled outwards, the counter-force being applied to the knee, which rested on the right shoulder of the operator. At the same time, the limb was gently rotated outwards by an assistant. There was no effect produced in this extreme flexed position; but in gradually bringing the limb down, while the same forces were continued, the head of the bone slipped into its socket with an audible snap, when the thigh had been brought to a semi-flexed condition. The whole procedure did not occupy above two or three minutes. A bandage was applied to keep the knees together, and she was then removed to bed. The chest had been bandaged before admission. With the exception of a slight attack of peritonitis, the woman did very well, and was discharged cured on the 16th of August.—*Med. Times and Gazette, April* 12, 1856, *p.* 362.

54.—DISEASE OF THE SHOULDER JOINT.

By James Syme, Esq., Prof. of Clinical Surgery in the University of Edinburgh.

[The subject of the present remarks was a young woman, aged 19, who had a sinus on the inner side of the right shoulder, which had existed for twelve months. A probe would pass through this opening to the coracoid process of the scapula. Mr. Syme thought it might have been caused, as the patient stated, by too long sustained efforts of the biceps, in carrying a heavy pot at arm's length, just as excessive exercise of the muscles which extend and adduct the thigh bones is so apt to cause exfoliation of their sciatic and pubic insertions. The opening was enlarged, and a portion of the coracoid process extracted. After this, the discharge of matter, instead of diminishing, increased, and there was evidently serious disease of the shoulder joint, so that it was necessary to do something more effectual for the patient's relief.]

The patient being brought in, Mr. Syme enlarged the opening over the coracoid *process, so as to* admit his finger into the joint, when, finding the head of the bone *bare, he extended* the incision downwards along the inner, and nearly to the *insertion of the deltoid.* He then, by means of a probe-pointed bistoury, guided on his

finger, detached the connexions of the spinati and other muscles connected with the greater and smaller tuberosity of the humerus, and pushing the arm upwards, so as to protrude the head of the bone, seized it in one hand, and sawed it off by a common saw with the other. As the glenoid cavity was found perfectly sound, nothing more seemed requisite than removal of the coracoid process, which still remained rough. It was therefore exposed and divided at its base by cutting-pliers. The only vessel that required ligature was a branch of the thoracica humeralis, and the edges of the wound being stitched together, the arm was placed in an easy position across the chest.

This case (says Mr. Syme) appears to me peculiarly interesting, not merely with reference to the relief which the patient may be expected to derive from it, but on account of its bearing upon some important points of surgical pathology and practice. In order to explain these views, I beg, in the first place, to remind you, that although all the articulations in the body are constituted by similar textures, they are not equally disposed to the same morbid derangements. The ball and socket-joints, such as those of the shoulder and hip, are liable to chronic inflammation, suppuration and caries, while those of the hinge-joint formation, such as the knee, ankle, and elbow, are the frequent seats of those derangements which have been named ulceration of the cartilages, and gelatinous degeneration of the synovial membrane, and were formerly comprehended under the general title of "white swelling." But the shoulder joint is apt to suffer from disease in certain ways entirely peculiar to itself, which, as they are not described by systematic writers on surgery, I may now endeavour to explain.

This peculiarity appears to depend upon inflammation affecting the head of the humerus independently of the scapular or corresponding surface, and inducing important changes limited to that part of the articulation. Of these a very remarkable one is removal of the osseous substance by absorption, so that a cavity is left in place of the round extremity. I first became aware of this curious fact two-and-twenty years ago, from the case of a boy, 14 years of age, who was confided to my care in this hospital, by Mr. Craig, of Ratho, on account of disease in the shoulder-joint, which it had been supposed would require amputation of the arm. Unwilling to adopt so severe a measure, I resolved to attempt excision of the diseased bone, and with this view made an opening into the joint, immediately under the acromion, when, instead of finding the articulating surfaces rough and carious, I found the glenoid cavity perfectly sound, the head of the humerus entirely wanting, and a large exfoliation contained within a thin osseous shell, of which the sides yielded, so as to allow of its extraction without any difficulty, together with a few thin scales of bone, which, from their convex surface, were obviously portions of the dense substance subjacent to the articular cartilage. The exfoliation is obviously the commencement of the shaft of its full thickness, so that all the cancellated bone between this and the small part of articulating surface remaining must have been removed by absorption. Various cases of a similar kind have since come under my notice; and, in one of them, the dead lamina of articulating surface was so complete that it resembled the glass of an old-fashioned watch. From these facts, I concluded that inflammation might affect the head of the humerus independently of the scapula, and excite absorption of its spongy or vascular portion, while the denser substance covering its articulating surface, and constituting the neighbouring part of the shaft, possessing less power of resistance, was deprived entirely of vitality. The view thus taken accounted completely for the case related by Mr. White, of Manchester, which had long perplexed surgical readers. In 1769, he communicated to the Royal Society of London an operation which he had performed for caries of the shoulder-joint by cutting out the head of the bone, together with a portion of its shaft, which was followed by a further exfoliation to the extent of an inch and a half, with the surprising result of a speedy recovery, and complete usefulness of the arm. Having often read and pondered this case, I was struck by the perfect similarity, in so far as its upper surface was concerned, of the exfoliation which I removed, with that of the portion removed by Mr. White; and, on comparing the two cases, found that they were in every particular almost precisely the same as to the age and history of the patients, who were both boys of fourteen, except in regard to the length of time during which *the disease had* existed. Mr. White operated at the end of a few

weeks, and I not until the lapse of as many months, so that while in both cases absorption had removed the head of the bone, Mr. White anticipated the exfoliation, which was completed while I performed the operation. In such cases, the periosteum, being detached from the dead bone, becomes the seat of ossitic formation, which forms a shell ready to supply the place of the absent bone, if not perfectly, at all events sufficiently for every useful purpose, so that there could be few more grievous errors than performing amputation of the arm under circumstances of this kind. But the inflammatory condition may lead to a different derangement, which it is, if possible, of still more consequence to discriminate from disease of the joint involving the scapula.

Thirty years ago, having just commenced the practice of my profession in Edinburgh, I was requested to take charge of a respectable married woman, named Christian Laing, 38 years of age, who had suffered for seven years from excessive pain, followed by suppuration, and discharge of matter through various openings in the vicinity of the right shoulder. She had been dismissed as incurable from the Royal Infirmary, and had also been regarded by Mr. Liston as in a condition not admitting of any relief. As she was extremely exhausted and daily becoming weaker, I naturally felt anxious to do something for her relief, and having no doubt that caries of the shoulder-joint was the source of all the symptoms which required remedy, I resolved to undertake its excision, although there was then no precedent for such an operation in Scotland, and little encouragement to it afforded by the practice of England, where more than half a century had elapsed without any attempt of the kind, excepting the removal on one or two occasions of the shattered fragments resulting from gun-shot wounds. I made an incision from the acromion process directly downwards, and, finding the bone hollowed into a cavity, made a second incision upwards and backwards from the lower end of the first one, so as to form a flap, which, being detached from the bone, allowed me to protrude it, and saw off the head. The glenoid cavity, being perfectly sound, was not disturbed. The patient made a good recovery, and during ten years which afterwards elapsed, until she died from another disease, enjoyed the perfect use of the arm for every domestic purpose, so that when her clothes were on it was impossible to distinguish it from the other.

In explaining cases of this kind I have hitherto been obliged to stop here, and frankly confess my inability to afford any satisfactory explanation of the remarkable peculiarities thus exhibited by the shoulder-joint in regard to its morbid conditions; but through the case at present under our consideration, I at length see a light which will probably guide us to a satisfactory conclusion. The well-ascertained effect of excessive contraction in causing exfoliation of the pelvic bones to which the muscles of the thigh are attached, together with the patient's history, can leave no doubt in the mind of any reasonable person that the diseased condition of the coracoid process proceeded from inordinate action of the biceps. But if the short head of this muscle was so strongly exerted as to occasion such mischief, its long one, which passes up the bicipital groove, enters the joint, and terminates in the glenoid ligament, must have been strained in a corresponding degree, so as to render inflammation of the parts immediately in connexion with it neither improbable nor surprising; and, in point of fact, when we examine the portion of bone removed, the groove which was occupied by the tendon of the biceps shows unequivocal marks of having suffered in an especial degree from the disease by its more than usual depth, intensity of redness, and vascularity, and exposure of the bone in part of its course. There is no other joint in the human body which has a tendon passing through it like that of the shoulder, and to this peculiarity of structure I think we may now fairly ascribe the peculiarities of pathological condition by which it is distinguished.

The patient recovered quickly, without any interruption, so that before the end of three weeks there was hardly any discharge from the wound, and she had in a great measure regained her general health. When she was dismissed, the arms were of equal length, there was no perceptible deformity of the shoulder, and the joint could be moved at will in all directions. Mr. Syme was therefore led to remark, that the mode of operating in this case, which had been suggested by its *peculiar circumstances*, seemed preferable to any of the others previously employed *from views* of expediency. It was certainly easier in the performance than any

of the methods which he had tried, and did not at all interfere with the integrity of the deltoid, so as to lessen the motive power of the shoulder-joint.

The head of the bone, when examined after maceration, was found to present some very remarkable appearances, corroborative of the opinion which had been expressed as to the origin of the disease. A considerable part of the convex surface had been excavated by absorption into a hollow that contained some detached exfoliations, without any signs of caries either there or in the remaining portion of articulating surface, which was simply divested of its cartilage; but between the tuberosities the bicipital groove was hollowed into an oval aperture, exposing to view the pieces of dead bone already mentioned, and affording unmistakable evidence of a carious condition by the peculiar rough and spicular aspect of its surface.—*Lancet, March* 22, 1856, *p.* 328.

55.—*On Diseases of the Joints.* By FREDERICK C. SKEY, Esq., F.R.S. Surgeon to St. Bartholomew's Hospital.—[We sometimes meet with cases, especially of diseases of the knee joint, which set every form of treatment at defiance.]

It should be recollected that the class of diseases of joints that presents itself in public hospitals is composed of cases often of months', or even years', duration. In such examples I have found little advantage, if any, from depletion by leeches or cupping; on the contrary, I think such treatment has generally proved injurious. I have found more benefit derived from the inunction of mercurial liniment, with about a third in quantity of fluid extract of opium, followed by rest and the somewhat firm application of a flannel roller; and the daily employment of a steam bath, made by cutting in two equal parts a square deal box, and laying the limb through the centre. An aperture admits the spout of a small kettle, in which the water is boiled by the aid of a spirit-lamp.—*Lancet, Jan.* 26, 1856, *p.* 87.

56.—ON CONTRACTIONS OF THE KNEE-JOINT.

By JOHN ERICHSEN, Esq., Professor of Surgery at University College and Surgeon to the Hospital.

Contraction of the knee-joint is one of the most distressing deformities to which the human frame is liable. If severe, the leg is bent at nearly, or perhaps quite, a right angle with the thigh. It is fixed in this position, so that the patient cannot put the sole of the foot, or even the points of the toes, to the ground; hence the limb becomes useless for the purpose of progression, and, from want of exercise, atrophies. But the leg with a badly-contracted knee is worse than useless—it is a positive incumbrance; for, as the foot cannot be brought fairly to the ground, the limb projects behind in a most awkward manner, swaying as the body moves round, constantly in the way, and liable to injury. From want of exercise, the nutrition of the limb thus affected becomes impaired; the foot is usually habitually cold, the circulation in it languid, and the toes liable to chilblains in cold weather.

In the less severe form of contracted knee, the inconvenience, though not so great as that just described, is yet very considerable; for, as the patient can never bring the heel or sole to the ground, he rests insecurely on the tips of his toes, and walks but unsteadily with the aid of a crutch or stick.

Contraction of the knee-joint may arise from a great variety of pathological conditions. Some of these are altogether external to the joint, being seated in the nerves or muscles of the limb; whilst others, and the majority, are dependent on some morbid change that has taken place within the joint itself in its ligamentous or osseous structures. As the contraction depends on such very varied causes, the treatment having reference to the causes as well as to the actual morbid conditions, must be equally diversified.

The simplest mode of discussing this subject will be to consider each variety of contracted knee with its appropriate treatment.

Occasionally the contraction, as I have already observed,is rather dependent on some irritation of the nerves and muscles of the part than on any disease of the joint itself.

Contraction from nervous irritation is usually associated with general hysteria, of which it is but a local symptom, and commonly occurs in girls and young women. In this form of contraction there is no evidence of disease within the joint; no redness, swelling, or other sign of inflammation; but there is great pain and tenderness about it. This pain, as usual in hysterical cases, is superficial and cutaneous, and radiates to some distance beyond the articulation. Any attempt at straightening the limb not only increases the pain, but also calls the muscles about it into such forcible action that it is impossible to improve its position. These local symptoms are connected with the ordinary signs of an hysterical temperament, with spinal irritation, and often with uterine derangement.

The treatment of these cases of *hysterical contraction* of the knee is simple. The first thing to be done is to straighten the limb. This can only be effected by putting the patient under the influence of chloroform, when, all sensibility being suspended, the muscular opposition, which is partly voluntary, and no doubt in some measure reflex, is no longer called into action, and the limb falls of its own accord almost into the straight position, in which it must be retained by means of a long splint, lest the retraction recurs with returning consciousness; and then, the hysterical condition being removed by treatment calculated to improve the general health, the tendency to the return of the deformity will be obviated.

The following case illustrates these points:—

Case 1. A girl, eighteen years of age, was admitted into University College Hospital, in November, 1853, for a contraction of the right knee. The patient was of a nervous, excitable tempérament, subject to hysterical attacks, and menstruated irregularly, but otherwise in good health. The right knee was contracted to a right angle with the thigh, and had been in this position for four or five months. No cause could be assigned for the deformity, except a slight blow on the knee some time previously, after which the contraction gradually came on. There was extreme tenderness all over and above the joint; this was cutaneous, increased greatly by pinching up or fillipping the skin, without in any way influencing the articulation. There was some spinal tenderness. No sign of inflammation or of injury about the joint. Any attempt at extending the limb was violently resisted, brought on intense suffering, with spasm of the muscles of the thigh, and was ineffectual in altering the position of the joint. I had the patient immediately placed under chloroform. So soon as she was fully anæsthetized, the limb could be straightened without an effort. It was then put on a well-padded, straight splint for a few days. The patient having been put on a course of the compound iron mixture, with the compound decoction of aloes, and shower-baths, speedily lost her other hysterical symptoms, and left the hospital cured.

We occasionally see contraction of the knee from spasmodic contraction of the hamstrings, arising from some irritation applied to the nerves at a distance from the part. Just as we have spasm of the internal rectus of the eye occasioning squint, so long as the irritation that gives rise to the spasm lasts; so we may have spasm of the hamstrings, with contraction of the knee as a consequence. I remember a remarkable instance of this some years ago in the hospital.

Case 2. A lad, twelve years of age, was admitted for contraction of the right knee, of eleven weeks' duration. The limb was bent at a right angle, and tolerably firmly fixed. The contraction had gradually come on, no cause could be assigned for it, and the general health seemed good. After some ineffectual treatment of a local nature, it was found that the bowels were loaded. A dose of calomel, followed by castor oil and spirit of turpentine, was then administered, when a large quantity of fæces, with some lumbrici, was expelled. The contraction disappeared on the following day, and did not return.

Most commonly, however, the joint itself is at fault, owing either to inflammatory action of a subacute character going on within it, or to the chronic and permanent changes induced by former inflammatory attacks.

In inflammation of the knee, the patient naturally and instinctively places the limb *in the semi-flexed* position, as being that in which there is least tension exercised *on the structures* that enter into the joint, and consequently that which is most

congenial to his feelings. The position which is immediately assumed on the occurrence of acute and active inflammation in the joint comes on more gradually in cases of subacute inflammation, and here the symptoms of disease in the joint may be so slight that the contraction may be considered the chief ailment, and engross too exclusively the surgeon's attention.

Case 3. A strumous boy, fourteen years of age, was admitted under my care in March, 1852, for contraction of the left knee. The limb was firmly flexed at a right angle, and had been so for about two months, during which period he had been unable to put the foot to the ground. There was no heat or swelling to any material extent about the joint, but some pain and tenderness were complained of along the course of the sciatic nerve and at the inner side of the joint; pain also was elicited on firmly pressing the articular ends together. There was no constitutional disturbance. Leeches were ordered to the joint, and blisters afterwards, with small doses of mercury with chalk and compound ipecacuanha powder, and the limb to be placed on a pillow. This plan of treatment was persevered in for about a week; the contraction gradually yielded, and the knee became straight, without the necessity of any extending force being applied to it.

We have thus seen that contraction of the knee may arise from hysteria, from muscular spasm, and from subacute inflammatory action within its articulation, each case requiring its own special modification of treatment, but none necessitating mechanical appliances.

The next class of cases that we have to consider are those of a more chronic and intractable kind, lasting often for years, dependent upon structural lesions of a deep and important character in and around the joint, and requiring very active surgical interference for their cure. These chronic forms of contracted knee appear to arrange themselves in four distinct varieties, being dependent—1st, on consolidation and contraction of the ligamentous structures in or around the joint: 2nd, on permanent contraction of the muscles: 3rd, on both these conditions conjoined: and 4th, on osseous anchylosis. Each of these varieties will require separate consideration, as each demands a special mode of treatment for its cure.

Those cases of contraction of the knee that depend on consolidation of the ligamentous structures in and around the joint, resulting from former inflammatory attacks, are not only the most numerous, but the most readily amenable to treatment. In these cases the knee is usually fixed at or near a right angle, and admits of but very limited motion, to such an extent only, in most instances, as will allow the foot to move to the extent of two or three inches. The hamstring muscles are not tense, even when the knee is extended to its utmost; and, indeed, in some cases are flaccid, and feel soft. Not unfrequently the leg admits of extension up to a certain point with as much freedom as natural, and then the further movement of the limb is checked by a sudden stop. If this be not dependent on the tibia coming in contact with an anchylosed patella, it is owing to shortening of the crucial ligaments, or to the formation of adhesions within the joint. In this form of contraction, the knee is often much distorted, owing to the head of the tibia being partially dislocated backwards, or having its axis directed more or less to one side, most commonly inwards, constituting a kind of genu valgum. These distortions are, I believe, dependent on softening and consequent relaxation either of the ligamentum patellæ or of one or other of the lateral ligaments. When the head of the tibia is displaced backwards, it will most generally be found that the ligamentum patellæ has been either partially absorbed, and thus weakened, or is elongated, the patella being drawn upwards or to one side. In either way the action of the extensor muscles of the thigh upon the head of the tibia is weakened, and that bone being subsequently brought under the influence of the hamstrings without a counterpoise, is drawn backwards. In those cases in which there is lateral rotation of the tibia, the faulty position may have arisen from the attitude that the limb has been allowed to assume during the progress of the disease in the joint.

In the treatment of this form of contraction of the knee, simple extension of the limb will prove sufficient. This may either be done gradually by means of the screw splint behind the knee, or forcibly and at once under the influence of chloroform. I prefer the latter method, not only as being the speediest, but as being perfectly *safe and effectual*. The mode of effecting forcible extension is as

follows:—The patient being fully under the influence of chloroform, and lying on his back, the surgeon, standing above him, seizes the foot of the affected limb with one hand, whilst with the other he steadies the limb just above the knee. He now extends the limb gradually but forcibly; as it comes forward the bands of adhesion in and around the joint will be felt and heard to give way with loud snaps and cracks, distinctly audible at some distance. Should there be much resistance within the joint, the surgeon may apply his own knee or elbow to the upper surface, and thus increase the force with which the limb is acted upon. In this way I have never found any contractions of the kind now under consideration able to resist the surgeon's efforts, or any difficulty in effecting at once the extension of the limb. Nor have I ever seen any evil consequences result. Indeed, it is surprising what an amount of force a joint that has been contracted for any length of time may be subjected to without inconvenience. In these cases it would appear as if the synovial membrane lost its susceptibility to inflame, just as we find is the case with serous membranes that have been the seat of chronic inflammation and its consequences. Beyond some pain for a few days, and slight heat, easily subdued by cold evaporating lotions, I have never seen any ill consequences arise; but then care must be taken that no inflammatory action is going on within the joint at the time of this manipulation, as it certainly would be followed by injurious results. After the extension has been made, the limb should be fixed on a long splint, well padded, some evaporating lotion applied, and the patient kept in bed for a few days, when, with the aid of a starch bandage, he may walk about.

After the extension has been effected, the position of the head of the tibia may still occasion some deformity. Should this be the case, much good may be effected by the use of an instrument invented by Mr. Bigg, and which I have seen of signal service in cases of this description.

The following cases, out of many, will illustrate the nature and treatment of this kind of deformity:—

Case 4. A man, twenty-three years of age, was sent to me last July by Mr. Ede, with contraction of the left knee of eight months' duration, the result of an acute attack of inflammation of the joint. The leg was bent at right angles with the thigh; the knee was nearly rigid, merely admitting of enough motion to carry the foot a distance of two inches. There was no tension of the hamstrings. As the case was a simple though a severe one, the patient was put under the influence of chloroform, and forcible extension practised; with loud snaps and cracks the knee yielded, and the limb came straight. No inconvenience resulted, and the patient was able to leave the hospital in about ten days.

Case 5. A woman aged thirty, seven months advanced in pregnancy, was admitted under my care last September, for acute articular disease of the right knee. Owing to the pain, she could not bear splints, and the limb was consequently supported on pillows. The disease went on to loosening of the joint, the tibia slipping readily on the condyles of the femur, with intense pain and startings at night, but with neither synovial effusion nor grating. On two or three occasions there was threatening of abscess; but the puffiness went down. As active local and constitutional treatment was adopted as her condition allowed, and the inflammation in the joint being subdued, she left the hospital to be confined. Contraction of the knee now gradually took place; and when she presented herself again in June, ten months after her confinement, the knee was bent at right angles, quite immovable, but not tender; there was some retraction of the head of the tibia; no tension of the hamstrings. She was accordingly put under the influence of chloroform, and forcible extension made with loud crackings and snaps in the joint as the adhesions were broken through; the limb came into excellent position. A tolerably smart attack of inflammation in the knee followed, but was subdued by rest in bed and evaporating lotions; and she was able to leave the hospital in about three weeks, wearing a starch bandage over the knee.

Case 6.—A woman, twenty-eight years of age, sent to me last autumn by Mr. Miles, of Gillingham, has had contraction of the right knee, consequent on inflam*mation* of the joint, for twelve years, during which period the limb has been useless, *as it is bent at* a right angle with the thigh. The leg is consequently much atro*phied, but of* good length by measurement. The limb was straightened, under

chloroform, with loud crunching and snapping noises. The hamstrings offered no resistance, but the whole obstacle to extension seemed to be within the joint. Some severe pain was complained of at the inner side of the joint after the operation. To relieve this, a few leeches, and some evaporating lotion, with rest in bed for a few days, was ordered, by which means it was speedily subdued.

In this case, there is some tendency to genu valgum. I thought it possible, from the length of time that the deformity had lasted, that division of the tendo-Achillis might have been necessary; but as I found that the sole of the foot could be brought flat to the ground, I do not think there will be any need for this operation. I attribute the absence of all retraction of the tibia, in this case, to the patella being in its normal situation; in fact, rather more deeply lodged than usual between the condyles of the femur.

Although, as has already been stated, it is very undesirable to practise forcible extension whilst inflammatory action is still going on in the joint, yet cases do occasionally occur, in which it may be necessary to do so, in order to correct a faulty position into which the limb has fallen, and which, if allowed to continue, might lead to the most inveterate forms of anchylosis. The following case illustrates the propriety of the forcible extension, even in acute disease of the joint.

Case 7.—A woman, twenty-two years of age, was under the care of Dr. Garrod, with very acute rheumatic arthritis of the left knee. The joint was so exquisitely tender that she would not allow it to be touched, but screamed loudly even when a hand was brought near it. Notwithstanding the employment of very active treatment, general and local, the inflammation continued, and the joint became firmly contracted at right angles. I was now requested to see her, in consultation with Dr. Garrod, when we agreed that it would be necessary, in order to prevent faulty anchylosis, to extend the limb under chloroform. This was done, and lateral leather splints were applied without any increase in the inflammation. This was eventually subdued by repeated leeching and the steady exhibition of mercurials; and although the ligaments became elongated, and admitted of very considerable looseness of the joint, she made a good recovery, with a useful limb.

The next class of cases of contracted knee that we have to consider are those in which the hamstrings are at fault, either alone or in addition to those results of chronic inflammatory action within the joint that we have just been describing. In these cases the hamstrings will be found to be tight, and in proportion as the leg is extended on the thigh, they will become tender, until at last all further extension is resisted, apparently by their traction, and not by any sudden check or stop within the joint itself.

Of the division of the hamstring tendons I need say little, more particularly as it has been fully described by Mr. Tamplin, and other writers on deformities. It is as simple an operation as any in surgery, unattended by any difficulty or danger, provided the surgeon introduces the tenotome parallel and close to the side of the tendon to be divided, and cuts in a direction from the inside or popliteal aspect toward the skin. After the division of the tendons, it not unfrequently happens that tense aponeurotic bands will be found to stretch along either side, or perhaps down the centre of the popliteal space. This may lead to the erroneous idea on the part of the surgeon that he has not fairly cut the tendons across; but this is an error. The bands alluded to are condensed, sharp-edged prolongations of the fascia lata, formed during the period of contraction of the joint by the retraction and thickening of this membranous expansion. Such condensations as these had better be left untouched, as they will readily stretch out under gradual extension or be ruptured by forcible traction of the limb. If, on the other hand, the surgeon be tempted by their apparent superficial and safe position to proceed to their division, he may be led into a serious dilemma by being brought more readily in contact with the popliteal vessels than is desirable or safe. In these cases the anatomical relations of parts are so much altered by the narrowing of the popliteal space, and by the projection of the head of the tibia backwards or by its lateral rotation, that the surgeon is unable to calculate with sufficient nicety the precise position of the large vessels and nerves in the neighbourhood of which he is about to act, and he might thus injure one or other of these at a time that he thought he was operating at a safe distance from them.

After the division of the hamstrings, the knee does not commonly come readily

57.—ON ANCHYLOSED KNEE-JOINT.

By Samuel Solly, Esq., F.R.S., Surgeon to St. Thomas's Hospital.

[Mr. Solly says that since he has acted as surgeon to St. Thomas's Hospital he has only amputated twice for disease of the knee-joint; in every other case, if the disease could not be arrested before the joint was obliterated, he has been successful in procuring anchylosis. The following case affords a good illustration of his method of treatment. The patient was an Irishman, aged 39, admitted March 14, 1854, with disease of the joint, of three years' duration.]

On admission his knee was very much swollen; the swelling was pale, characteristic of ulceration of the cartilages, and hence its familiar title, white swelling. He could bend it partially, but with great pain. He suffered from a constant distressing gnawing sensation over the external semilunar cartilage and corresponding head of the tibia, where there was a lump, distinguishable from the fluctuating swelling of the rest of the joint. During his sojourn here under my care he had eleven issues made with potassa fusa, and to this constant repetition of the caustic I attribute his recovery. I do not believe that there is so much advantage from the *suppuration* which follows the removal of the eschar as there is from the counter-irritation primarily excited by burning. As a general rule, I prefer, therefore, the repetition of it to an issue kept open with peas. He has not been in the hospital the whole of the time since March, as he was presented during my short absence from town in August by one of my colleagues, who found him so much better that he thought the joint quite sound. A few days' labour, however, brought him back, when I was obliged to have recourse to counter-irritation. This time I used the seton, as there was very little space for another issue. The knee is now free from pain, and with the assistance of crutches he can get about very well. The two joints are nearly the same size, and the limbs nearly the same length. The tibia is slightly flexed, and in a direct line with the femur. He is to leave the hospital on Tuesday next.

In the above instance, the limb is anchylosed in such a position that it will be very useful to him. Sometimes it happens, either from want of attention on the part of the surgeon, or such severe constitutional irritation accompanying the progress of the disease as to prevent his retaining the limb in a right direction, that the leg becomes anchylosed at such an angle with the thigh that the foot scarcely touches the ground, and at the same time the leg is twisted out of the straight line. If such cases come before you, they must not be considered hopeless. If the disease is entirely gone, and the joint obliterated, you may break through the anchylosing bands, and straighten the limb. Many of you will remember a successful case of this kind last summer, but as some of you did not see it, I will read you the notes briefly.

Thos. B——, aged 20, cheesemonger, was admitted under my care on the 19th of June, 1855. His left knee is perfectly fixed and immovable; the leg is bent upon the thigh, so as only to allow the toes to touch the ground. The foot and leg are not in a straight line with the thigh, but twisted outwards, so that the deformity is very considerable. The patella is adherent to the external condyle. There is no pain, tenderness, or swelling of the joint; but the limb is quite useless to him. The history is, that this condition of the joint followed an attack of acute inflammation, which was treated during a sojourn of twenty-one weeks in a metropolitan hospital. His general health is good.

In my first examination of this joint I thought that the division of the hamstring muscles would materially assist me in straightening the limb, as they were in a state of great tension; but when he was placed completely under the influence of chloroform, this disappeared, and a true osseous anchylosis alone retained the leg in its false position. This bony anchylosis was, with some force, completely broken through, and the rending asunder of the bones was distinctly audible throughout the theatre with a loud crack, and the limb was straight. After his removal to bed, and before he had completely recovered his consciousness, the limb was firmly bound to a long back splint, with a foot-piece such as we use for fractured patella *Ordered*, cold lotion over the knee; calomel, two grains; opium, one grain *immediately.—Evening*: Complains of the tightness of the bandage; otherwise *his leg is easy*. The bandage was loosened.

June 24th. The following day there was a little swelling in the situation of the joint, but not much; no pain in it since the bandage was altered; pulse 90; skin rather hot; tongue furred; bowels costive. To have a black draught immediately. Now, you will naturally be astonished to hear of so little local mischief—of so little constitutional disturbance—after such violence, for violence it was, though necessary for the object to be attained.—Evening: The bowels not opened. Repeat the aperient.

25th. Free evacuation of the bowels; had a good night; says his knee feels very comfortable; pulse 84; no thirst; tongue foulish; appetite good: knee rather swollen.

26th. Ordered the leg to be readjusted on one of Liston's tin splints, in a slightly flexed position.

27th. Less swelling of the joint; a little ecchymosis on the inner side of the knee; bowels open; less pain.

28th. Tongue clean: pulse quiet; no heat of skin; knee easy; swelling abated; appetite good; and sleeps well.

July 12th. Since last report he has gone on well; has been confined to bed. The knee has been free from pain; and there has been no constitutional disturbance. To-day, that is, nineteen days from the date of the operation, the splint was altogether removed. He has not much power in flexing the leg himself; but I can do so to a limited extent. There is no pain or tenderness in the joint. In about a week from this date he left the hospital quite well, with a very useful limb. —*Lancet, Jan.* 5, 1856, *p.* 5.

58.—*Two Suggestions respecting Excision of the Knee-Joint.* By JONATHAN HUTCHINSON, Esq., Surgeon to the Metropolitan Free Hospital.—In an excision of the knee-joint which I had occasion to perform the other day, it was my intention to have adopted two precautionary expedients which, as far as I am aware, have not hitherto been either practised or suggested. On cutting away its condyles the femur was, however, found so extensively diseased that amputation was necessary, and I consequently lost the opportunity hoped for of testing the practical value of the measures referred to. Under these circumstances I am induced, although untried, to bring them before the attention of surgeons, being more encouraged to do so by the high opinion as to their importance which has been expressed to me by several authorities, to whom they have been mentioned. The first is the *division of the hamstring tendons*, by which I should hope to prevent that repeated displacement of the bones which is often so very difficult to obviate in the after-treatment, and is the source, when it occurs, of so much suffering to the patient. By thus putting the tibia completely at rest there could be no doubt but that apposition would be easily obtained and preserved, and that all risk of non-union would be done away with. The second is the *making of an opening into the popliteal space.* An excision of the knee-joint differs from all other operations of its class, in that it provides no direct escape for the matter secreted in the subsequent stage of suppuration. In several cases which I have seen, the greatest inconvenience was produced by the bagging of the pus into the depending part of the large wound. It often burrows among the muscles, and requires counter-openings, in various directions, for its removal. All this I would endeavour to prevent by making a free depending opening by the side of the tendon of the popliteus, at the time of the operation. A circumstance strongly indicating the desirability of such a practice, and which in fact first suggested it to me, is, that in several of the cases which have done best after excision of the knee, a sinus into the popliteal space existed prior to the operation.—*Med. Times and Gazette, March* 15, 1856, *p.* 258.

59.—*Excision of the Carpal Bones.*—In a case of partial but very painful disease of the wrist-joint, in Guy's Hospital, Mr. Cock, in place of ordinary amputation of the fore-arm above that articulation, had recourse to the conservative process of removing the *two most diseased* of the small bones, the magnum and unciform,

leaving thus the trapezium and trapezoid (the two other bones of the second row) in contact with the metacarpal bones of the thumb and first finger, together with the flexor carpi radialis and flexor pollicis tendons, entirely untouched. Such an operation as this removes the chief source of irritation in such cases, according to the experience of Mr Cock, and the chances of all the other bones becoming diseased are thus materially lessened. In country practice especially, the evidence afforded in this case would go to show that all such partial excisions, joined to the use of cod-liver oil, tonics, &c., in preference to mutilation and deformity caused by amputation, are eminently entitled to attention; even if the worst should happen, Mr. Cock remarked to his class, if the strumous or other disease should still make way, and the bones of the first row, the cuneiform, the semilunar, pisiform, or scaphoid become involved, which seldom occurs, we may then carry out the original intention or idea of amputation above the joint. The operation, as performed in this instance, leaves a perfect use of the thumb and fingers, as in the common process of holding a pen, which to many patients, such as clerks, shop assistants, &c., when the disease occurs in the right arm, makes all the difference between being able to be employed in their ordinary occupation or remaining for life disabled and out of employment.

In operations of this nature, it is sometimes objected, that the parts become "matted together," and much motion cannot be expected, a firm fibro-ligamentous structure filling up the space left open; but a very useful hand may be preserved by keeping the fingers somewhat flexed during the process of repair, and the thumb, trapezium, and trapezoid being untouched, the most delicate uses of that part, as in writing, sewing, grasping various bodies, &c., are preserved for the patient—any kind of a hand being, in short, preferable to no hand at all.—*Lancet, Dec.* 15, 1855, *p.* 578.

60.—*Conservative Operations on the Hand.*—As a small but not unimportant matter of "minor surgery," we have recently seen some five or six amputations of fingers for scrofulous and other diseases at various hospitals—three by Mr. Erichsen, and another by Mr. Fergusson, on the 8th instant. The cases are of interest, as involving a practical point, on which surgeons do not seem well agreed—namely, whether in removing the index, middle, or ring fingers, for instance, it is better to save as much as possible of the phalanx next the palm, or remove the phalanx and the head, and a small part of the metacarpal bone, in order to render the hand less unsightly. Mr. Erichsen, as a rule, removes as much as possible of the bony parts with the diseased finger, and believes he thus leaves a more shapely hand and one more useful. If we take the ring finger, for instance, on which he operated, and leave the first phalanx untouched, it is only in the way subsequently, and always getting injured, ulcerated, and cut; but if, on the contrary, the surgeon, when called on to remove the finger, makes a V incision at the back of the hand, he can easily take away the entire finger and head, or part of the entire metacarpal bone, when the little or middle fingers come into apposition, and in a large hand especially, the result of the operation can scarcely be noticed, while the entire hand has lost none of its efficiency. We have examined such hands, and found them to fulfil such expectations. Mr. Cock, however, who once tried the plan at Guy's, we deem it important to say, has fallen back in preference on the old method; and Mr. Fergusson, though deeming it right in his case to take away a large portion of the parts, as they were all irremediably diseased, is still somewhat averse to cutting unnecessarily into the palm of the hand, or interfering with the metacarpal bone, as a matter of *convenience*, or leaving a more shapely hand, not of much use he believes—at least to hospital patients. Where the index finger is the one diseased, some surgeons even slice off the metacarpal bone, whether affected or not, by a peculiar slanting or oblique movement of the small saw, a single line of cicatrix marking the original wound; a few stitches to hold the parts in contact and common water-dressing being all that is necessary afterwards to complete the cure. If the metacarpal bone be involved in the disease, there can of course be no question as to its removal, and instances are recently given of excision of the index finger, together with the entire metacarpal bone, with most unexpected and admirable results as to the appearance and usefulness of the hand subsequently.

Mr. Fergusson has pointed out these various operations to his class, and one even still more strange in the practice of Mr. Butcher recently, where the os magnum, the cuneiform, trapezoid, and unciform were entirely removed, the inferior edge of the lunar pared, two-thirds of the fourth and fifth metacarpal bones also excised, four arteries ligatured, yet leaving a useful hand! All our surgeons seem agreed, however, that the same rule does not hold good with respect to the tarsus as the carpus; indeed, Mr. Erichsen says the rule is the opposite; and in the amputation of toes, the big toe especially, we cannot leave too much bone, as a surface on which the perpendicular axis of the body is to rest, while in amputation of fingers we cannot, on the other hand, cut too much away. Mr. Solly, too, as recently noticed, is rather inclined to amputation of the foot, and artificial means for supplying the deficiency, rather than the unsatisfying and tedious processes of excision of the astragalus and calcaneum, and the subsequent treatment so often negative and long protracted.—*Lancet, Dec.* 15, 1855, *p.* 578.

61.—*Fractures of the Leg.* By Fred. C. Skey, Esq., F.R.S.—In simple fractures of the leg, whether of one or both bones, provided there is no displacement or injury of soft parts, a simple pillow, made of soft flock, and of sufficient size to encircle the limb, is bound to the leg by means of straps, or tied with pieces of roller, or broad tape; and forms a soft wall around the limb, which creates a sensation of security beyond that of any number of splints, and is exceedingly simple in its application; besides which, the pressure is so regular and uniform as to give a degree of comfort, or rather, the absence of discomfort, which appears to me to justify the resort to this simple expedient in all cases similar to those for which I have employed it—viz. simple fractures of the leg, without displacement, and such, of course, are for the most part transverse.—*Lancet, Jan.* 26, 1855, *p.* 88.

62.—*Painful Stumps after Amputation.*—In a patient with very painful stump after amputation, Mr. Stanley dissected out the nerve and bulbous extremity, which, under microscopic examination, proved normal in structure. At one period, he stated, these bulbs were conceived to be the cause of the neuralgia of the stumps; but he was inclined to agree with Mr. Langstaff and Mr. Spence, of Edinburgh, that they were merely natural products, and, except they got involved in the cicatrix on the face of the stumps, they never caused pain. He stated also a very interesting practical fact, that from considerable experience of amputations with flaps and by the circular mode, and from a comparison of cases in other countries, where the circular mode of amputation was preferred to the plan by flaps,—brought so much into use by Liston,—that painful stumps were much more common after flap amputations than circular amputations; in the latter, the nerves were cut off short and buried in the stump; while in long flaps, the nerve or bulb almost always comes to be pressed on, causing more or less pain.—*Lancet, Dec.* 29, 1855, *p.* 625.

63.—*On Housemaid's Bursa.* By Fred. C. Skey, Esq., F.R.S.—[There are few diseases more common, or more troublesome, than this. It is situated over the upper part of the tendon of the quadriceps muscle or ligamentum patella.]

It may present itself in the form of a rounded swelling, of about the size of the half of a small apple, or it may reach that of a full sized orange; it may be more or less prominent; it may be soft to the touch, conveying the sensation of fluid within moderately thin walls, or of a nearly solid centre, with thick and nearly incompressible walls; it may be attended by an inflammatory condition of the integuments, or the surrounding skin may have undergone no change in respect to colour or condition. If we make allowance for different susceptibilities of constitution, and varying degrees of local congestion, I do not know any form which this disease assumes that is not amenable to treatment by means of a single thread of silk passed through its centre. Sooner or later, from two or three days to ten or fifteen, suppuration in the cyst *will assuredly* follow, and the matter is either absorbed or the

disease assumes the form and character of an ordinary abscess, for which the lancet affords the most effectual relief. Nothing can be more interesting to the observing eye of the surgeon than the process by which the thick walls of the harder and insensible bursæ appear to melt away under the influence of the local irritant, and assume the character of the bursæ with thin walls and fluid contents. The more insensible the disease, the larger and coarser should be the silk thread. I will not assert that inflammation never follows the introduction of the silk, but I never have known it serious in its degree, and it has always shown itself perfectly tractable on the removal of the exciting cause.—*Lancet, Jan.* 26, 1856, *p.* 87.

64.—ON THE PATHOLOGY AND TREATMENT OF PARALYTIC DEFORMITIES.

By William Adams, Esq., Assistant Surgeon to the Royal Orthopædic Hospital.

[In paralytic deformities, with flaccid muscles, the limb is utterly useless; it dangles or swings to and fro, becomes atrophied, and passes into a state of fatty degeneration. Legs in this condition have often been amputated, but the necessity for this may be prevented by timely treatment.]

In these flaccid paralytic legs, various contractions and deformities take place in the course of time from adapted atrophy of the muscles and ligaments: but before describing these deformities and the general principles of treatment applicable to such cases, I will advert to the more prominent points in their pathology; as upon a right comprehension of this portion of the subject will depend your power of forming a correct prognosis. If, on the one hand, you overstate the advantages likely to accrue from operative and mechanical treatment in these cases, the result will be disappointment to your patient, and discredit to yourself; but, on the other hand, if you are unable fully and correctly to prognosticate the effects of treatment, you fail to render that service, which I shall show it is in your power to afford. The latter, I regret to say, is the common failing in reference to the class of cases we are now considering.

[The flaccid condition of the muscles is seldom persistent after adult paralysis. In children, the muscles either remain permanently in a flaccid condition, or may partly recover, but they never become rigid; rigidity of the limbs in children is never preceded by flaccidity of the muscles.]

By far the greater number of the paralytic deformities which you will meet with in practice (and these are so numerous as to constitute the great majority of all the non-congenital deformities), will be found to result from *infantile paralysis*. Orthopædic practice will frequently bring you in contact with children thus afflicted, in every stage of this peculiar form of paralysis; and, although our treatment is generally directed against the removal of certain consequences and effects, I believe that all these deformities may be prevented by judicious treatment; in fact, that there never need be another example of deformity in these cases, if the liability to their occurrence, and the mode of their production, were generally understood.

The importance of this subject, in connexion with orthopædic surgery, renders it necessary that I should lay before you a general outline of the history of infantile paralysis; but for a complete account, I must refer you to the valuable works of Kennedy,* West,† Rilliet and Barthez,‡ Bouchut,§ and Heine.‖

Children, between the ages of six months and two years, are especially liable to paralytic seizures, which, like the paralytic affections of the adult, may assume the form either of hemiplegia or paraplegia, or sometimes that of general paralysis,

* 'Dublin Medical Press,' September 29, 1841; and also, 'Dublin Quarterly Journal of Medicine,' February, 1850.

† On some Forms of Paralysis incident to Infancy and Childhood. 'London Medical Gazette,' 1845; and Lectures on the Diseases of Infancy and Childhood. Third edition. London, 1854.

‡ Traité Clinique et Pratique des Maladies des Enfants. Deuxieme edition. Tome deuxieme. Paris, *1853.*

§ *Practical Treatise* on the Diseases of Children. Translated by P. H. Bird. London, 1854.

‖ *Beobachtungen* uber Lahmungszustande der untern Extremitaten und deren Behandlung. Stuttgart. *1840.*

both the upper and lower extremities, speech, &c., being involved. But these are its only points of resemblance.

Infantile paralysis differs from the paralytic affections of the adult in the following respects:—It has a marked tendency to involve only single muscles, or groups of muscles, in the extremities; and these are its most frequent forms. Motion only is affected; sensation remains perfect, or nearly so. This constant relation does not obtain in adult paralysis. The viscera are not implicated. Frequently it is neither preceded nor accompanied by any cerebral symptoms; and when such symptoms do occur, they are very rarely more than of a transient character. It is not attended with any danger to life, even in its most severe forms. Complete recovery very frequently occurs, and often takes place rapidly. This is extremely rare in adult paralysis. Rigidity of the muscles neither occurs during nor after recovery; they either remain flaccid, where the paralysis is persistent, or resume their healthy condition, where recovery takes place. This is the reverse of what takes place in adult paralysis, rigidity, with partial recovery, being the rule when the patient survives. These peculiarities point to a special pathelogy of this affection, which, however, has not yet been determined.

Most frequently this form of paralysis occurs during the period of the first dentition, and with the irritation attending this process it appears to be connected: less frequently it occurs during the second dentition. But it may occur earlier and later than these processes. Cases at later periods recorded, such as one by Dr. West, of paralysis of the portio-dura, with ptosis, double vision with giddiness, for a week, &c.; and a case of paraplegia, following typhus fever, in a girl aged 18 years, mentioned by Rilliet and Barthez, can with less certainty be included in this category.

Whether paralysis of particular muscles or limbs, independent of traumatic lesion, is ever congenital, I consider at least doubtful. The cases related of limbs remaining flaccid and useless in infants born asphyxiated, after difficult and instrumental labours; and of facial paralysis, usually of one side,—sometimes accompanied with loss of power in the corresponding arm,—which, in some instances, have been satisfactorily traced to traumatic lesion, cannot be admitted as examples of this affection.

Infantile paralysis is often, though by no means constantly, preceded and accompanied by symptoms of transient cerebral disturbance, such as convulsions or drowsiness. It not unfrequently follows marked febrile disorders, especially measles and hooping-cough; also gastric, remittent, and typhus fever. A slight febrile condition appears very constantly to exist; but the paralysis is said frequently to happen not only without any convulsions or cerebral disorder, but without any symptoms at all, and when the children are in robust health. Under these circumstances, it occasionally occurs in the day-time under the direct observation of the parents; but more frequently we are told that the child was put to bed in its usual health, and in the morning was found to have lost the use of a leg or an arm, or both. The *cause* is, therefore, often very obscure.

Infantile paralysis affects both sexes equally. I agree with Dr. West in thinking that it more frequently occurs in children of weak constitutions, though the opposite opinion is held by Kennedy. Its *duration* is extremely variable. Barthez and Rilliet relate a case of paralysis of the arm in a child, lasting only twelve hours, and other cases of seven or eight days' duration. Improvement frequently takes place in a few weeks, and is often complete in from three to six months.

A tendency to spontaneous and perfect cure is a marked characteristic of this affection. In slight and moderately severe cases affecting single muscles or groups of associated muscles, complete recovery is the rule, and great improvement almost constant; and this I have frequently seen taking place several years after the seizure. Numerous cases of this kind are seen at the Orthopædic Hospital in all stages of spontaneous recovery, without any treatment having been adopted. In very severe cases involving both the arms and legs, partial recovery is the rule; and the arms recover first and more perfectly than the legs, though they have been as completely paralyzed. This has constantly occurred in the cases I have seen, and is the reverse of what takes place in adult paralysis, according to Dr. Todd.

Infantile paralysis most commonly affects some of the muscles of one leg; very frequently the leg and arm of the same side are affected together; occa-

sionally both legs; and very rarely both legs and both arms. When single muscles are affected, the most frequent to suffer are—1st, the extensor longus digitorum of the toes; 2nd, the tibialis anticus; 3rd, the deltoid; 4th, the sterno-mastoid. When particular groups of muscles are affected, the most frequent to suffer are,—1st, those on the anterior part of the leg, forming the extensors of the toes and flexors of the foot; 2nd, the extensors and supinators of the hand, always together; 3rd, the extensors of the leg, and with them generally the muscles of the foot in the first class.

In these cases, other muscles than those specified are sometimes slightly weakened, and this may not be uncommon at the time of seizure; but if so, they completely recover in a large majority of cases, as in the later stage, when they more frequently come under our notice, they present well-marked examples of paralysis of single muscles and groups of associated muscles. Sir Benjamin Brodie lately mentioned to me a case brought to him, in which the muscles of deglutition were paralyzed in a child. The attempts to swallow were very painful to witness. He did not know the result, but death from starvation probably took place.

With respect to the *morbid anatomy* of this affection, or the nature of the structural changes upon which it depends, very little is yet known. As it is seldom, if ever, a fatal disease, except, perhaps, under the circumstances mentioned in Sir B. Brodie's case, opportunities for making post-mortem examinations in recent cases must be extremely rare. Only three have been recorded. Two by Barthez and Rilliet; one of paralysis of the arm, and the other of paraplegia; an attentive examination of the brain, spinal cord, and nerves in these cases did not reveal any appreciable lesion. The other case, recorded by Dr. Fliess, and alluded to by Barthez and Rilliet, was also one of paralysis of the arm, and a simple congestion of the membranes of the spinal cord on a level with the brachial plexus was found; the structure of the cord, the brain, and the nerves was perfectly healthy.

These examinations confirm the opinion to which we are led by the clinical history of these cases, viz.—that this peculiar form of paralysis generally occurs without any serious or irreparable damage to the nervous centres and nerve-trunks. Further investigations, however, are required before we can form any definite opinion as to the essential nature of this affection. It appears probable, that local congestion of the nervous centres or nerve-trunks, accompanied in some cases with effusion, which subsequently becomes absorbed; and in other cases, with some local failure of nutrition under a general, though perhaps slight febrile condition of the system—would be the ordinary phenomena; but the frequent absence of cerebral symptoms, even in the most severe cases, with extensive and persistent paralysis, is very remarkable.

M. Bouchut describes this affection under the title of "Myogenic, or Essential Paralysis," and, except in cases preceded by febrile convulsions, regards it as a local affection, "accompanied by an alteration of the elementary tissue of the substance of the muscles." He considers it to depend most frequently upon exposure to cold,—as from the children wearing low dresses, being put to bed without warm night-dresses, throwing off the bed-clothes, &c.; and observes, that children, under these circumstances, are "most usually attacked with this paralysis, the nature of which is, according to my opinion, entirely rheumatic." The evidence of the myogenic and rheumatic nature does not appear to me sufficiently conclusive; and I think that the children who, in restless nights, throw off the bed-clothes, &c., are frequently suffering from febrile or eccentric irritation, during which a local congestion—sufficient to produce the immediate effect, and in some instances followed by a failure of nutrition, rather than active inflammatory mischief,—would be not unlikely to occur. Many children, apparently in good health, become heated and feverish during the night; the skin, especially of the face, being hot and burning, and the head freely perspiring. I think it probable that, in many of these cases, the children have fits which pass away unnoticed in the night. The *morbid anatomy* of this affection, and therefore its essential nature, must be considered as not yet determined.

The diagnosis is free from difficulty; the special symptoms above enumerated *will enable* you at once to recognise the case as belonging to this peculiar form of *paralysis*.

The *prognosis* which you will be called upon to give, will be looked for with the greatest anxiety; as the sudden, alarming, and apparently dangerous nature of the attack, when severe, will excite the worst apprehensions. You may, however, assure the parents that there is little or no danger to life, even in its worst forms, when almost all the voluntary muscles of the body are involved. And you may also assure them, that no permanent affection of the brain, or liability to a second attack, as in adult paralysis, need be apprehended.

With respect to the recovery of voluntary power in the extremities or muscles involved, your prognosis must always be very guarded. Although Kennedy supposes that the prognosis may be based upon the mode of seizure, it appears to me that no general rule with respect to this, or any other event, has yet been discovered. The extent and intensity of the paralysis will influence your opinion to a certain extent. In cases in which both arms and both legs are involved, complete recovery rarely, if ever, takes place; but great improvement generally occurs, the arms recovering more completely than the legs. In cases of less severity, complete or partial recovery is the rule; but a useful amount of improvement cannot absolutely be relied upon, as it is occasionally persistent through life, though a few muscles only are involved. Complete recovery is, however, much more frequent than generally supposed, as proved by the large number of deformities we meet with in which the muscles are found in a healthy condition, (so far, at least, as is consistent with the amount of deformity,) although the paralysis of one or more muscles during infancy laid the foundation of the mischief.

Speaking generally, however, your prognosis must be cautious and guarded with respect to the restoration of voluntary power, when the cases are seen at the time of or soon after the seizure; and if seen at a later period, when atrophy and deformity have occurred, your opinion must depend upon the exact state of the muscles, and any tendency that may be exhibited towards improvement. It is generally supposed that unless recovery takes place within a few months, the paralysis is persistent through life, but I have seen many cases in which improvement has commenced several years after the seizure, and proceeded to a very useful extent. Bearing in mind this fact, your prognosis must vary according to the circumstances existing at the time in each case.

The *treatment* of this affection at the time of seizure scarcely comes within our province, and you will do well to consult the able works to which I have above referred. But I may remark that as the nature of the structural changes producing the paralysis has not yet been determined, and as the circumstances under which it occurs differ so widely, the treatment must vary according to the state of the patient at the time, and the apparent cause, when such exists. There are frequently no indications of the approach of so formidable a disease, and at the moment of seizure the mischief is already accomplished. If irritation from teething exists, the gums may be lanced, but not otherwise. Any existing febrile irritation must be allayed; and the warm bath, purgatives, and counter irritation may be used. Alteratives may be employed; but whether mercurial treatment is useful appears very doubtful; it has failed where I have known it to be used most freely. Dr. West recommends purgatives and tonics. Dr. Fliess advises cupping in the region of the nervous centres corresponding to the part affected.

[When the state of paralysis does not disappear in a few months, a series of changes take place, which constitute the second stage of this affection and terminate in the production of deformity.]

Mode of production of deformity.—The consecutive deformities of the feet and extremities which occur in the second stage of *infantile paralysis* are produced by adapted atrophy of certain muscles, principally the *opponents* of those which have suffered paralysis. For example, if the anterior muscles of the leg and foot are paralyzed, the anterior portion of the foot drops, and the heel is raised;—*not* by active contraction of the posterior muscles, for division or paralysis of one set of muscles does not excite active contraction in the opponent muscles, but in consequence of the position assumed by the foot from its mechanical relations with the leg. The posterior muscles are no longer required of their normal length, nor are they ever called fully into action. They, therefore, accommodate themselves by a process of "adapted atrophy," as described by Mr. Paget, to their required length; and a permanently-raised condition of the heel, producing deformity, re-

sults. When both the anterior and posterior muscles are paralyzed, the same process takes place, but at a slower rate. The same method applies to all other parts. When the paralysis is persistent, and involves all the muscles of the leg, a general atrophy, with fatty degeneration and arrest of growth, takes place, as in the case above adverted to, that was examined by Mr. Quekett. Useless "swinging" legs, in this condition, are sometimes seen two inches or more shorter than the opposite legs.

These cases form the most numerous examples of the class of deformities we have been specially considering, viz. those *with flaccid muscles*.

The kind of deformity produced will vary according to the muscles involved in the paralysis. The most frequent form is that of talipes equinus. 2nd, equino-varus; 3rd, equino-valgus; 4th, calcaneo-valgus; and 5th, talipes varus. When both feet are affected, equino-varus of one foot generally coexists with equino-valgus of the other.

[What can be done in these cases? Many surgeons object to treatment, because, they say, if you remove the deformity the paralysis remains; but it is from these very hopeless and essentially incurable cases that some of the most striking, most brilliant, and most valuable results of orthopædic surgery are obtained.]

The *treatment* in all these cases essentially consists in the removal of existing deformities by tenotomy and mechanical appliances, and subsequently compensating for the paralysis or loss of power by mechanical support. A fortunate circumstance in the pathological history of these cases enables us to effect these objects with remarkable success. I allude to the state of the muscles surrounding the hip-joints.

In many cases in which the rectus and other muscles of the leg are paralyzed, the muscles in the neighbourhood of the hip-joint are not involved. And in the cases of infantile paraplegia, as well as those of general paralysis, which I have described as involving both the upper and lower extremities, &c., the rule appears to be that the muscles surrounding the hip-joints so far recover, in the course of a few years, as to be available in the effort of progression, even when all the muscles below the hips remain paralyzed, or in a state of very imperfect recovery. Hitherto I have seen no exception to this rule; and availing ourselves of this favourable condition, you will at once perceive how far it is practicable, by timely interference in appropriate cases, to enable such patients to walk. The deformities of the feet can easily be cured, and the feet afterwards retained in their normal position by mechanical supports, which must be extended to the thighs, and adapted so as to render the knee-joints immovable in the erect position; in fact, mechanically to anchylose the knee-joints. It can be so contrived that the knee may be bent at pleasure in the sitting position, and again straightened on the erect position being assumed.

The general result and advantages of this mode of treatment may be well illustrated by the following case of a lady, whom I was requested to see by my friend, Dr. Goolden, of St. Thomas's Hospital, on the 5th of March, 1852, and found in the following condition:—

M. M. R., aged 39, of small stature, and very thin. She was totally unable to walk, or even to stand, either with crutches, or with any other assistance, in consequence of the completely paralytic condition of both her legs, which had followed an attack of paralysis at the age of 5 years. She was always carried about by a servant, and in the drawing-room and garden made use of a *wheel-chair*. Both her legs were atrophied to an extreme degree, with the muscles in a flaccid condition, and the feet contracted in the positions represented in figs. 1 and 2, viz.—equino-varus of the right, and equino-valgus of the left. She had no power whatever in any of the muscles of the left foot and leg below the hip; excepting a very feeble power in the hamstring muscles. In the right leg there had been a slight general return of power in the muscles, but the rectus muscle of the thigh was now as powerless as that of the left side (probably from rupture of the ligamentum patellæ, the result of an accident), so that both the legs were in the so-called "swinging" condition; without the least power of extension. Yet voluntary power existed in the muscles around the *hip* joints, sufficiently to enable the *patient* to bend and extend those joints with tolerable force. She also suffered

from a lateral curvature of the spine to the left side, of extreme severity, and accompanied with very severe symptoms, to be hereafter alluded to.

Fig. 1.

Paralytic Talipes, Equino-varus.

Fig. 2.

Paralytic Talipes, Equino-valgus.

History of the case.—This I will give you from an account written by herself: —"When 5 years of age, I was suddenly seized with an attack of paralysis, affecting both arms and both legs, while sitting on a chair in the daytime. It was found that I could neither get off my chair, nor even move a finger. After some days I recovered the use of my hands and arms, but to this day the left arm is weak. After some months I so far recovered the use of my legs as to be able to walk with the assistance of an arm, and a stick in my right hand, pressing it against the right hip. From the time of my illness, I used to lie almost all day on a reclining board. Between 8 and 9 years old, I was examined by Dr. Arnott and Mr. Cline, and pronounced straight in the spine, but as they feared my mode of walking might curve the spine, they recommended crutches. My own impression is that, at this time, my right heel did not touch the ground, and that the left ankle turned over in the way you found it, though not nearly so much. I now wore instruments on my legs for three years; they were invented by Dr. Arnott.

"At 12 years of age, my spine must have been curved, because Dr. Arnott ordered me to use his *tripod*, a sort of crane on a three-legged stand placed behind a small chair with an upright back; a steel arch went over the head, with a strap under the chin; a strap was also passed under each arm, both head and arms were then balanced by weights hung over pullies. In this machine I used to sit the whole day, with the exception of the time passed in exercise, or on the reclining board, until I went to France in 1829 (then 16 years of age). I could at this time walk about a mile, and ride perfectly well. I was thrown from my horse, and broke my right knee; and after this accident, always *swung my legs* in walking.

"In August, 1830 (then 17 years of age), I had fainting fits, and used to remain insensible for an hour and a half or two hours at a time. Then I was seized with those spasmodic attacks described to you by Dr. Goolden; and from this time I never walked, excepting one day after my return to England I managed to walk across the room."

This case was evidently an example of the most severe form of infantile paralysis, involving both the upper and lower extremities, and probably, to a less extent, the muscles of the trunk. As far as I could learn, the attack was neither preceded nor accompanied by any cerebral symptoms, nor marked febrile attack. Nearly perfect recovery took place in the upper extremities, as usual: but very partial improvement occurred in the lower extremities, and this was almost entirely confined to the right leg. From the fact of her having walked, there can be no doubt that the rectus muscle of the right leg had partially recovered, together with the other muscles of this leg, but the accident referred to (probably rupture of the ligamentum patellæ, which I found more attenuated and longer than that of the opposite leg, and the patella displaced to some extent upwards and outwards) reduced this leg to the same "swinging" condition as that of the left, in which no recovery had taken place. Loss of health followed this unfortunate accident, which deprived

her of the little muscular power she possessed in her legs available for the purpose of progression.

The fainting fits and spasmodic attacks, in which Dr. Goolden tells me the diaphragm was affected so as to cause the most serious apprehensions, probably depended upon spinal irritation produced by a rapid increase in the spinal curvature. The effect was, that from the year 1830 to the year 1852, when I first saw her, a period of twenty-two years, she had not been able to walk, even with any amount of mechanical assistance that could be rendered her.

Relying upon the favourable condition which I above adverted to, viz.—the existence of voluntary power in the muscles in the neighbourhood of the hip-joints, the psoas, iliacus, glutæi, &c., I undertook the treatment of this case without the least hesitation, and promised to make her walk after a manner—stiff-legged I may call it—but at any rate sufficiently well for the more important purposes of exercise and health.

By division of tendons and mechanical treatment, the feet were easily brought into their normal position, as exhibited in Figs. 3 and 4, in less than three months;

Fig. 3.

Cure of Equino-varus shown in Fig. 1.

Fig. 4.

Cure of Equino-valgus shown in Fig. 2.

and, with the assistance of steel supports, extending above the knee-joints, she was enabled to walk, to the extreme surprise of her oldest friends, who had always heretofore seen her either carried in the arms of a servant, or lying down, or sitting in a wheel-chair. For the purposes of confidence and balance she usually walked between her two sisters, and in a few months could take exercise for half-an-hour at a time. Muscular power improved, and with it came fresh accomplishments, such as walking up and down stairs without other assistance than taking hold of the bannisters, &c. She rapidly gained flesh, and her general health greatly improved. A new life seemed to open itself to her. The pleasure of being able to walk to church, visit her friends, see exhibitions, and in various ways to enjoy many of the pleasures of life to which she had been a stranger, may be better conceived than described.—*Med. Times and Gazette, Dec.* 15, *p.* 589; *and Dec.* 29, 1855, *p.* 641.

65.—ON THE PATHOLOGY OF THE REPARATIVE PROCESS IN TENDONS, &c., AFTER SUBCUTANEOUS DIVISION.

By William Adams, Esq., Assistant Surgeon to the Royal Orthopædic Hospital.

[By experiments on rabbits we find that the tendons become re-united by a newly formed connective tissue, which gradually assumes the structural characters of the old tendon; in fact, a perfect reproduction of tendon takes place, and this may sometimes be found to the extent of two inches.]

In external form, definition, and size, it precisely corresponds to the tendon which it unites; and externally the continuity becomes after a few months so perfect, that the line of junction cannot be recognised. On a longitudinal section, however, the line of junction of the old with the new tendon can be recognised at *the latest* period to which these experiments extend, viz. the sixty-second day; *and I may* here remark that I have found this equally apparent in a human tendon

three years after division. The old tendon retains its opaque, dense, white, glistening character; while the new tendon possesses a certain amount of translucency, and is of a uniformly greyish colour, without the characteristic glistening appearance of the old tendon. The mode of connexion is by the finest dovetailing of the old and new tissues.

Reparative Process in Human Tendons.—The paucity of facts bearing upon this very interesting inquiry, I have above adverted to. In the Museum of the College of Surgeons are three specimens of human tendons, after division for the cure of congenital varus, presented by Mr. Tamplin, of which the following description is given in the catalogue, vol. II. "No. 358, 359, 360:—The tendo-Achillis, and the tendons of the anterior and posterior tibial muscles of a child 19 months old. They were all divided by subcutaneous section nearly eighteen months before death. No trace of the division is discernible in any of them; their outlines and surfaces are regular, and their texture is uniform; even with the microscope no part could be found different from the rest."

Mr. Paget observes:—"In the instances of divided human tendons less retraction takes place than in those of the lower animals. The connecting bond is, therefore, comparatively shorter; and it is yet more shortened when, like a scar, it contracts as it becomes firmer."

In reference to the ultimate disposal of the new connecting tissue, Mr. Tamplin quotes the account given by Stromeyer, in which are the following observations:—"The idea that the elongation of the muscle is effected through the cicatrix, is a false one; the extent of the substance, or cicatrix, is quite inadequate for this purpose. In some cases of *pes equinus*, the gastrocnemii are two or three inches too short; and, in *wry-neck*, the sterno-mastoid is equally short, yet the cicatrix, after the cure, is but a few lines long. The elongation of the muscle must be effected in these cases at the cost of its contractility, and thus the incision of its tendon acts, not only on its mechanical, but also on its vital, properties; and, by the temporary diminution of its irritability, its contractile power is diminished, and any increase of it prevented." Mr. Tamplin then remarks:—"The views of Stromeyer are, I believe, on the whole correct. I am of opinion, however, that the new substance will, and does, admit of sufficient extension to compensate for the greatest amount of shortening met with in any deformity: for I have repeatedly, in cases of talipes equinus, found the new connecting medium full two inches in length within three or four weeks following the operation, especially in those cases where there is no resistance in the joint, and where the foot admits of being rapidly brought into its normal position." . . . "It is true, as a general rule, that the cicatrix, after the cure is effected, measures but a few lines, oftentimes only a line, in thickness, provided proper care has been taken during the treatment. . . . The elongation in congenital cases, and also in non-congenital cases, of young subjects, is undoubtedly effected eventually at the cost of the contractility of the muscle, but not primarily; this is a secondary result, for no new uniting medium can by possibility possess the power of drawing down the muscle, any more than the newly-formed granulations following a burn can do. The cicatrix, as it contracts, certainly does so, but after the foot is brought into position; and hence the linear cicatrix. The force of the contraction of a cicatrix is sufficiently evident in the instances of burns alluded to, not only to draw down and overcome one muscle, but even a set of muscles, as the extensors of the head and neck, or of the arm, and other parts." Mr. Tamplin then describes two cases, in which he had examined the Achilles and other tendons, in one case a year, and the other eight months, after division. In all, the reparative process is said to have been so perfect, that no trace of their having been divided could be detected externally or in a longitudinal section. In the section, "a sort of globular appearance in one spot" is alluded to with some doubt as to its import.

You will perceive that the general tendency of all these observations is to the effect that the newly-formed connecting tissue is not a permanent structure, but that "after the cure" a process of contraction and absorption takes place in it, and proceeds till the whole, or nearly the whole, of it is absorbed, and "a linear cicatrix" produced by the previously-divided extremities of the old tendon again coming in contact with each other. According to this view, also, the required length is ultimately obtained at the expense of the muscular structure. Now, to

far as my own dissections in the human subject have enabled me to form an opinion, and I have examined, *post mortem*, several cases at periods varying from a fortnight to three years after the division of the tendons,—in addition to several specimens in Mr. Lonsdale's collection,—I have arrived at a precisely opposite conclusion. I have seen nothing to support the idea that this material is absorbed, and "a linear cicatrix" produced.

The preparations in the Museum of the College of Surgeons above adverted to, were not examined when recent by longitudinal section, the only method by which, at a late period, the difference between the old and new tendon can be recognised, as explained in my description of the rabbit's tendon on the fifty-fourth day after division. Small portions have been removed from different parts of these tendons for microscopical examination; and as showing the absence of any minute structural differences, the account given is valuable; but beyond this they have no bearing upon the general question, as to the temporary or permanent nature of the newly-formed connective tissue. The tendo-Achillis of the opposite leg should have been preserved, to demonstrate any difference in the relative length of these tendons.

In all the cases I have examined, a considerable length of new tendon, varying, of course, in every instance, but sufficient for the purpose required, has been clearly traceable; and in the case at the latest period after division, viz. three years—the specimens were the Achilles-tendons removed from a lady, aged 39 at the time of operation, who died of rapid phthisis—the length of new tendon inserted between the divided extremities of the old tendon, which are still traceable, is seen to be 1¼ inch. I believe, therefore, that whatever amount of new connective tissue, or new tendon—as I prefer to call it, for the very close resemblance of its structure when perfectly formed, to that of the old tendon, fully justifies the expression—is formed, remains as a permanent tissue, and that through its agency the required elongation is maintained.—*Med. Times and Gazette, Jan.* 26, 1856, *p.* 80.

66.—ON THE TREATMENT OF TALIPES EQUINUS.

By William Adams, Esq., Assistant Surgeon to the Royal Orthopædic Hospital.

[The treatment of these cases must be both operative and mechanical combined, it will be useless trying the one without the other. The only important tendon requiring division is the tendo-Achillis; the tendon of the plantaris is generally divided in the same section. In some cases it may be also necessary to divide the plantar fascia and short flexor muscle in the sole of the foot. The operation is simple and free from danger, when skilfully performed, and presents a striking contrast to the severe and unscientific proceedings which were formerly adopted in these cases.]

If tenotomy is at the present day occasionally followed by dangerous inflammation, of which I have witnessed several examples,—and, moreover, a little local inflammation is by no means an uncommon event in the practice of some surgeons,—it is because the value of the true subcutaneous character of these operations is not yet fully appreciated. I have very frequently seen the operation commenced well, the puncture and size of knife being sufficiently small, but, by the time the tendon has been divided, the puncture has been increased at least two or three times its original size. By such a proceeding the true subcutaneous character of the operation is immediately lost, and the chances of inflammation proportionably increased. To avoid this accident, it is generally recommended that you should use a knife which only cuts for about five-eighths of an inch from the point, the rest being blunt and rounded. This precaution may be useful to those who are unaccustomed to such operations, or have but little tact in operating; but I have seen a large tendo-Achillis scratched through rather than cut, by such a cautious knife, and will show you how to avoid enlarging the cutaneous puncture without curtailing the edge of the knife, and thereby diminishing its usefulness. To cut a tendon cleanly and quickly, you must use a cutting edge considerably longer than the breath of the tendon; the cutting edge I use for an adult varies from an inch to an inch and a quarter in length.

Mode of dividing the tendo-Achillis.—Place the patient on the stomach, with the foot hanging over the edge of the table or bed, and let an assistant put the tendon on the stretch by endeavouring to flex the foot, while the leg is kept in an extended position. He must be prepared instantly to relax this tension, as the section of the tendon is completed. Then introduce the tenotomy knife with its flat surface parallel with the tendon, close to the inner or outer edge of the tendon, according to the leg operated upon, and rather towards the posterior surface, than on its lateral aspect, as usually done. Pass the knife obliquely downwards, keeping the point close to the tendon, beneath which you may then carry it to the opposite side, and in this movement you will, of course, depress the handle to a horizontal direction. Now turn the cutting edge towards the tendon, and divide it transversely from the internal to its external surface. By this method you gain a most important *lever-advantage* in cutting the tendon, and avoid all risk of enlarging the cutaneous puncture, as the pressure at this point is rather on the back than the edge of the knife. If you hold the knife horizontally, and enter it at the lateral aspect of the tendon, and rather below it, as is frequently done, you will sometimes meet with considerable difficulty in dividing a tough Achilles tendon, because you operate upon the tendon mechanically to the greatest disadvantage; the tendon yields before the knife, without division, and in this way I have seen a surgeon almost despair of cutting it, change his knife—which, undeservedly, gets all the blame—introduce a new one, and then succeed only after a great deal of perseverance by a sort of scratching with the point, which must be directed upwards, while the handle is depressed to a corresponding extent. In such a proceeding the cutaneous puncture is generally much enlarged, and a risk of subsequent inflammation incurred. Tendons cannot be divided with safety to the patient unless they are divided neatly, quickly, and without disturbance to the surrounding tissues; and the puncture should never exceed an eighth of an inch in length. In infants the tendons readily give way before the direct pressure of a sharp knife, in the movement I have described to you, but in adults a little cutting manipulation is required.

A sudden, audible snap and yielding of the joint indicate the division of the tendon, when the muscular structure is in a healthy, or a nearly healthy, condition, as in the infantile cases and those of spasmodic origin; a perceptible separation of the divided extremities also occurs, leaving a gap at the seat of operation; but where advanced atrophy and degeneration of the muscle have taken place, as in cases of paralytic origin, and in cases of adult varus, no audible snap occurs; and in the last class of cases, as well as in those of the most severe form at younger ages, the separation is extremely slight, from the condition of the muscles and the ligamentous rigidity of the joint.

The division of the tendo-Achillis is *not necessarily followed by hemorrhage.* I have frequently divided it, and sometimes, in two or three cases in succession, without even staining the knife with blood; this depends very much upon the care with which the point of the knife is kept close to the tendon. It is rare to see more than two or three drops of blood follow this operation when carefully performed.

Pressure after Division.—On the instant of withdrawing the knife, cover the wound with your finger, and immediately apply a small compress of lint held in position by a strip of adhesive plaster. This prevents effusion and infiltration at the seat of the wound. Then bandage the foot and leg up the calf, and bind the foot, in the same position in which it was before the operation, to a padded splint adapted to the deformed shape of the foot; a splint made of tinned sheet-iron is most useful, as it can readily be bent to any shape required. In talipes equinus a nearly straight splint should be applied along the dorsum of the foot and in front of the ankle-joint.

Another mode of Operating.—Some surgeons recommend the tendo-Achillis to be divided by passing the knife flatwise between the tendon and skin, and then cutting through the tendon from behind forwards. Mr. Fergusson advises this method, but I very much prefer the mode I have described to you.

Risk in each Method.—Each plan has its liability to an important accident. In the division from within outwards, you may also divide the skin, and make a large open wound—an accident *which I* have seen occur two or three times. This may

result either from a too vigorous and incautious operation, or from your assistant not being on the alert instantaneously to cease flexing the foot on the division of the tendon; and also, in the event of a spasmodic contraction of the anterior muscles taking place, from your assistant not instantly controlling this by a strong counter-effort of extending the foot. While, therefore, your assistant is making a strong effort in one direction, he must be prepared suddenly either to cease, or to reverse the effort in an opposite direction—close adhesions between the tendon and skin, either the result of previous division, or inflammatory mischief which may have produced the deformity, will especially increase the liability to this accident. In dividing the tendo-Achillis from without inwards, there is a risk of puncturing the posterior tibial artery, an accident which I once saw occur in a boy about 12 years of age, and I have heard of its occurring again in the practice of the same surgeon; the jets of blood left no doubt as to the nature of the accident in the case I witnessed, but I believe it did well under pressure.

After the operation, the patient, if an adult, should remain on a sofa for the remainder of the day, with the leg resting on a pillow in a flexed position. On the following day he may walk about, with the assistance of a pair of crutches. The foot should be kept warm if paralytic.

Mechanical extension should be commenced on the third day in infants, and also in persons of more advanced age, provided that the nutrition of the leg is uninterrupted; but in paralytic cases not till two or three days later. By that time the cutaneous puncture will be healed, though this should not regulate the practice so much as the probable activity of the reparative process. The foot should be bandaged and placed in a Scarpa's shoe, having a joint moving in the direction of flexion and extension, corresponding to the ankle-joint, and regulated by a cog-wheel

Fig. 1.

Scarpa's shoe now used at the Orthopædic Hospital.

Fig. 2.

Scarpa's shoe as modified by Mr. Adams.

FIG. 1.—*a*. Sole formed of iron, covered with leather. *b*, *b*. Heel plate attached to *a*. *c*. Perpendicular bar, with a padded side plate fixed to its upper part, to diffuse pressure when the foot is everted. *d*. Circular strap, containing a semicircular steel plate in its posterior half, which resists the action of the flexion and extension cog-wheel *k*, and holds the perpendicular steel in its fixed relation to the leg. *e*, *f*. Straps by which the heel is held firmly in the shoe. *g*. Circular strap fastened above the ankle, and connected to the heel-plate by two straps, to assist in holding the heel firmly down. *h*. Horizontal steel spring fixed to the heel plate. *i*. Strap which passes round the anterior part of the foot and draws it outwards towards the horizontal spring *h*. *k*. Cog-wheel by which the flexion and extension movements of the foot from the ankle-joint are commanded. *l* Cog-wheel, by which inversion and eversion of the foot are to some extent commanded.

FIG. 2.—A. and B. The parts modified are lettered to correspond with Fig. 1. The circular ankle-strap *g*, is dispensed with as useless. *b*. The heel-plate is much diminished in size, to avoid pressure in lateral movement. *c*. This heel-strap has its power greatly increased by passing directly backwards through an aperture in the heel-plate and sole, instead of transversely across the front of the large heel-plate, as in Fig. 1. The aperture is also useful, in enabling you to ascertain whether the heel is in its place. *h*. A straight bar is substituted for a spring: it acts as well, and is less in the way.

and screw. If any lateral inclination exists, a second cog-wheel joint, moving in the direction of inversion and eversion, should be added (Fig. 1). This modification, I believe, was first adopted by Mr. Tamplin, and the form of boot now in use at the Orthopædic Hospital is that represented (Fig. 1); but I have found several modifications represented in Fig. 2, of practical utility, and therefore employ this form of apparatus.

Rate of extension.—By means of this apparatus the foot may be gradually brought into its natural position. The rate at which it is desirable to accomplish this, should be regulated by the activity of the reparative process in the divided tendon; but practically it is often limited by the ligamentous rigidity of the articulation. In well-nourished infants, the full length required in the divided tendo-Achillis should, according to my observation, be obtained in a fortnight if practicable; in a well-nourished leg in the adult, it should be obtained in from three to four weeks; but in atrophied paralytic limbs it should not be obtained in less than from six to eight weeks.

The *object*, I think, is not so much to elongate or stretch the new material uniting the divided extremities of the tendon, as generally supposed; but rather to regulate the length of new material, or, as it may be called, the new tendon, while we have the opportunity of so doing; and the rate at which this is to be accomplished, must have reference to the activity of the reparative process, and to the length of new tendon required.

This important part of the process must therefore be left to the judgment of the surgeon, in cases in which there is but little resistance from the adapted shortening of ligaments; but if this exists, as in some cases of equinus of long standing in the adult and in severe congenital varus, it will not be possible to proceed at the desired rate, and it may even become necessary to divide the tendon a second time, before the required length be obtained.

In the mechanical treatment of talipes equinus, care should be taken to carry the foot beyond the right angle with the leg; in fact, it should be carried to the angle natural to the period of life at which the operation is undertaken. When one foot only is affected, this may be ascertained by comparison with the healthy foot.

Disposition to valgus.—In some of these cases, towards the end of treatment, a disposition to turn outwards is observed in the foot, which would therefore assume the position of talipes valgus. This, I think, most frequently depends upon the flat form of the sole of the Scarpa's shoe, and the length of time the treatment of these cases has generally occupied. In other words, I regard it as an effect of the long-retained position imposed by the mechanical treatment adopted. It may, perhaps, occasionally result from a disposition to muscular contraction. The tendons of the peronei muscles become tense, and Mr. Tamplin advises their division, but I have found this condition yield to passive exercises, and a little altered adaptation of the Scarpa's shoe.

Passive exercises during extension.—During the latter part of the period occupied by the mechanical extension, when this is tedious from the amount of ligamentous resistance, passive exercises should be employed, not only with the view of preventing the stiffness of the joint which is always produced by long-retained position, and which may even result in another kind of deformity, as above alluded to; but of preserving the muscular and other structures in a healthy condition, and to some extent assisting in the restoration of the natural form of the part. The movements required in cases of equinus, are flexion and extension of the foot, which in children I direct the parents to do for a quarter of an hour or more, twice a day. The period at which this should be commenced must depend upon the condition of the foot. When much resistance has to be overcome, I am not an advocate for intermitting the mechanical extension employed. In the cure of severe contractions, the good seems to be done by constantly applied, and well regulated, mechanical extension. I would therefore delay the passive exercises, until the case is advancing towards a cure. In severe cases motion is always attended with more or less pain, which in children appears to be referred to the neighbourhood of the tendon, or around the ankle-joint, but in adults is always referred to the anterior part of the ankle-joint. This may, perhaps, depend upon the edges of the articular surfaces of the bones—which, I have explained to you, become more or less de-

nuded of their articular cartilage in the adult—coming into contact with each other. In a little time, however, and by cautiously regulating the exercises, this completely disappears, and the functions of the joint are restored.

Use of foot to commence.—When all the deformity has been removed, and the reparative process in the divided tendon appears to be sufficiently perfect, the patient may begin to use the foot in walking: and then it is the invariable practice at the Orthopædic Hospital to support the ankle-joint, by attaching one or two side-irons to the boot, having each a joint, when two are used, corresponding to the ankle-joint, and connected above by a narrow semicircular steel plate, which rests against the calf of the leg, and the extremities of which are connected by a strap passing across the front of the leg, which is thus encircled. I am not, however, in the habit of using this support where all the muscles retain their power, unless a relaxed condition of the ligaments of the ankle-joint and foot should exist, or there should be an inclination to any lateral deviation in the foot.—*Med. Times and Gazette, Feb.* 23, *p.* 181, *and March* 29, 1856, *p.* 306.

67.—ON CONTRACTIONS OF THE KNEE, AND DESCRIPTION OF A NEW INSTRUMENT FOR THEIR CURE.

By JOHN ERICHSEN, Esq., Professor of Surgery at University College and Surgeon to the Hospital.

[The different kinds of contraction of the knee-joint have been previously discussed, together with their causes and treatment. The present paper will be devoted to partial dislocation of the tibia backwards, and its appropriate treatment.]

Contraction of the knee-joint, so far as the deformity is concerned, may be of two kinds—1st, it may consist of simple flexion of the leg or the thigh, at a greater or less angle, and with more or less mobility, according to the degree of anchylosis—2nd, in addition to this, there may be horizontal displacement of the bones, the head of the tibia being thrown backwards, the femur and patella remaining *in situ*, but apparently projecting more than is natural.

In examining a case of contraction of the knee-joint, the patient should be placed on his face, with the thigh extended. The leg on the affected side will then be raised more or less perpendicularly, and the amount of contraction may be judged of by the angle that it forms with the thigh. The degree of mobility also may readily be ascertained. In this way a more correct idea of the amount of contraction can be obtained than by examining the patient whilst lying on the back, when, in consequence of the thigh being flexed on the abdomen, the extent of the angular deformity cannot be so well determined.

When the contraction or anchylosis is of the slighter or simpler kind, the knee being merely bent and fixed at an angle, without any displacement of the osseous surfaces from one another, forcible extension under chloroform, with or without previous section of the hamstring tendons, will usually readily bring the limb into a straight position; but if the contraction be accompanied by horizontal displacement, the head of the tibia being thrown backwards, the limb, though tolerably straight, will continue deformed and weakened. It is to this condition of partial dislocation of the knee-joint that I wish to direct special attention.

The ordinary form of extension instrument commonly used in cases of contracted knee, and consisting of two iron plates separated by means of an extending screw, is probably more faulty in its mechanical construction than any other kind of apparatus used in orthopædic surgery. This arises from an attempt to act upon the knee-joint as if it were a *fixed* centre, instead of one easily displaced by the least horizontal change of position occurring between the extremities of the bones composing it.

When the ligaments, by the aid of which the normal condition of a joint is maintained, have become softened and relaxed,—in the first instance by the diseased action that has been going on in the joint, and afterwards by the unequal strain to which they are subjected by the contraction,—they readily yield to any *force favouring* the displacement of the bones in a direction opposite to that of *their strongest* attachments. Thus in cases of ordinary contracted knee, the weight of the body added to the force exercised by the flexors of the leg, is sufficient to in-

crease the amount of deformity, and, by separating the osseous surfaces of the joint, predispose it to displacement in its horizontal plane.

If muscular power, acting through the medium of such levers as are offered by the form of the tibia and femur, were alone sufficient to produce horizontal displacement of the bones, then an apparatus applied to the limb in such a manner as to antagonize their contractile action and to extend the extremities of each lever, would be amply sufficient to straighten the limb and secure natural action to the joint; but the ligaments themselves undergo a change in the direction of their *passive* force, which, upon the application of mechanical pressure to any part of the levers formed by the tibia and femur, becomes an active power in creating axial displacement.

The disturbance being in the inverse proportion to the distance at which the power is applied, it necessarily follows that any instrument, taking its resistive surface along the posterior border of the tibia and femur, must act most powerfully in *producing backward displacement* of the head of the tibia.

It must also be borne in mind that although, theoretically, the extremity of each lever—the femur and the tibia—is supposed to separate during the process of mechanically restoring a contracted knee to its straight condition, practically the tibia alone undergoes change of position, the femur becoming from its attachment to the pelvis, a fixed point for the instrument to act against. The head of the tibia has therefore a tendency to pass backwards each time an attempt is made to lessen the angular condition of the limb. This alone would prove the unmechanical principle upon which the older forms of knee-instruments are based, and at once explains the advantage derivable from any apparatus acting in such a manner as to replace the head of the tibia, at the same time that it is extending the angle of the leg.

The instrument, of which the following sketch (fig. 8) is a good representation, was designed and constructed by that excellent surgical mechanician, Mr. Bigg, to whom my best thanks are due for the way in which he carried out my ideas, and for the many valuable suggestions with which he has favoured me on this as on many other occasions when I have required his assistance in the adaptation of mechanical contrivances to orthopædic cases. By it the important points alluded to are secured; and not only does it become an invaluable agent in extending the knee, but likewise offers remarkable facilities for replacing the head of the tibia should it have become luxated posteriorly, either as the result of disease or by the employment of ordinary extension.

Fig. 1.

To render its mechanism intelligible, the first diagram (fig. 1) represents the limb of a patient whose tibia has become displaced backwards, the angular contraction having been remedied. In the centre of the end of the femur and the head of the tibia, two letters (X and Z) are placed to designate the axis of each bony head, beneath and above which the displaced joint has formed its abnormal axis. The dotted lines represent the leverage formed by the cylindrical surface of the tibia and femur. The arrows are placed in such a direction as the bones would take in resuming their normal position.

It will readily be seen that any instrument capable of acting in the mechanical directions shown by the arrows, would accomplish not only the restoration of the joint, but extend, if contracted, the extremities of both femur and tibia.

The third figure shows the application of the instrument by which this can be effected.

An additional advantage that this instrument possesses over any other with which I am acquainted, is the application of spring power, by means of which flexion of the knee becomes an element towards its restoration.

Instead of arresting muscular action, and thus giving rise to atrophy of the limb,

movement is conducive to the perfect action of the apparatus, so that the patient experiences but little inconvenience from its use, all the ordinary positions assumed by the knee in walking, sitting, or standing, being preserved.

A young gentleman, at present under my care, who has worn this apparatus for several weeks, is enabled to use the limb without the slightest difficulty for all ordinary purposes. In order that this might be accomplished with as little inconvenience as possible, Mr. Bigg has contrived to make the instrument so light that it offers no obstacle to the patient's movements.

By this form of apparatus, then, three important points are secured, viz. replacement of the head of the tibia; extension of the angle of the leg; and free muscular action during the period of treatment.

Fig. 2. Fig. 3.

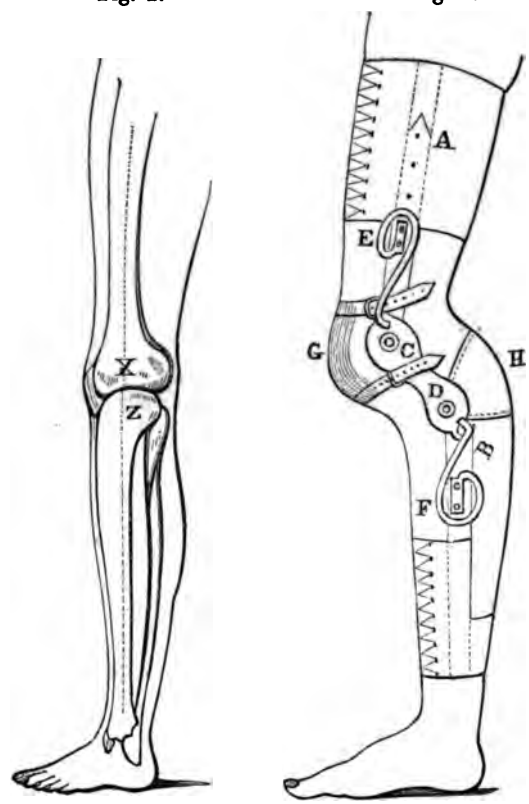


Fig. 2 represents the bones placed in their normal position, with the axis of the knee-joint restored and each centre in its relative position.

Fig. 3. A and B are three levers, composed of metal, corresponding in their direction to the perpendicular position of the femur and tibia.

C and D are two axes, placed exactly coincident with the centres of the articular ends of the bones.

E and F are two powerful springs whose action takes place in opposing directions, similar to the arrow-indicators in fig. 1. Thus F presses the lever B in an anterior direction, bearing the end of the tibia forward, whilst E presses the lever A in a posterior direction, bearing the end of the femur backward. As C and D are found acting above and below the actual axis of the knee-joint, they mutually influence the point formed by the apposition of the heads of the tibia and femur; and as it has already been explained that the femur really offers a fixed resistance, and the tibia moves beneath it, the head of the latter bone is turned anteriorly in a semicircular direction consequent on the upper centre (C) being a fixed point, and the lower centre (D) rotating around it.

G is an elastic knee-cap.

H. a padded plate.

When the ligaments are tense, there is a chance of pressing the anterior surface of the tibia against *the posterior* surface of the femur. This is readily obviated by having the shaft (A) made to elongate, *when the* centre (C) being a little lowered, pushes the lever (B) downwards, carrying the tibia with *it, and thus* separating the osseous surfaces of the joint.—Lancet, May 8, 1858, p. 477.

ORGANS OF CIRCULATION.

68.—ON TRAUMATIC EXTRAVASATIONS OF BLOOD WITHIN THE ARACHNOID.

By PRESCOTT HEWETT, Esq., Professor of Surgery to the Royal College of Surgeons of England.

[There are no certain signs by which we may know that blood has been poured into the cavity of this serous membrane; when slight it may produce no symptoms whatever, and even when in larger quantities there may be no decided symptoms, owing to its being very much diffused; but supposing you have the symptoms of compression, what are you to do? Would you be justified in going on a voyage of discovery, and opening the dura mater in search of the effusion? This is a very serious question, and one on which there is a great diversity of opinions, even among our best surgeons.]

"Are you warranted to trephine to let out the blood from between the meninges?" Such is the question asked by Abernethy, a question which every surgeon of the present day would, I think, answer in the negative. But let us look at the question as it is put by Sir B. Brodie. "Suppose a case, in which a considerable portion of bone has already been removed, in which the dura mater is seen exposed, of a blue colour, lifted up by a collection of blood beneath it, and bulging, as it were, into the aperture which has been made in the cranium. Are we justified in puncturing the dura mater, for the purpose of allowing the extravasation to escape?" Under such circumstances as these, no surgeon would, I think, hesitate; but at once lay open the dura mater. This, there is no doubt, is the course which ought to be pursued, and there is ample evidence to prove that, however perilous such an operation may be, it has repeatedly been attended with the most signal success. Whenever, on the other hand, the dura mater, after the removal of the bone, is found to be quite healthy, every prudent surgeon having nothing to guide him, will abstain from proceeding further.

Some of the cases which I have already brought before your notice, prove that patients may recover, even when large quantities of blood have been poured into the cavity of the arachnoid, and that too, without a single symptom to reveal the extensive mischief which still lies within the skull. This complete recovery is, however, rare; for large extravasations of blood in this serous membrane generally lead to the formation of encysted collections which give rise to some permanent affection of the brain.

For the following interesting case I am indebted to Dr. Richard Quain:—

A farmer, aged 58, about three years before his death, in driving home from market, was, being rather the worse for liquor, accidentally turned over in his cart. When picked up, shortly afterwards, he was in a state of insensibility, with a large scalp wound over the right temple. He gradually recovered his senses, so as to be able to answer such questions as were put to him by a surgeon, who arrived about half an hour after the accident. The wound being dressed, the patient proceeded home, a distance of five miles. He was subsequently confined to his bed for a week, after which he began to resume his ordinary avocations; but he was never the man he had been. He complained of a general pain in the head, and more especially at its lower part, as well as at the back of the neck. During the following year, he became more irritable in temper and desponding in spirits. He felt unable to follow his employment as was his wont, and, for hours together, he frequently sat with his hand on the side of his head, and his elbow resting on his knee, sometimes exclaiming that he was "good for nothing, and no use here." His memory became impaired, but in other respects the intellectual faculties were unaltered. Thus matters went on for about a twelvemonth, when one day, while holding a lamb, which was struggling violently, he was suddenly seized with a kind of fit. He fell forwards, as if drunk, became insensible, and continued so for a quarter of an hour. During this time there were no convulsions; but when he came to again he felt a numbness on the left side, and the skin appeared dark coloured for several days afterwards. In about a month, he had another fit of a like character, and from this period he became subject to such seizures, on any unusual exertion. He was always conscious of the approach of these attacks, and used to say that he was going to have one of his fits. He remained much in the same state *until the day of his death*, which took place suddenly from rupture of

the left ventricle of the heart, caused by fatty degeneration of that organ. On opening the dura mater, on the right side, a large cyst fell out of the cavity of the arachnoid. The cyst, which was perfectly loose, was lying lengthways, covering the greater part of the upper surface of the cerebral hemisphere, where there was a large depression, or bed, into which the cyst fitted. There was neither roughness nor any signs whatsoever of any connexion ever having existed between the arachnoid and the cyst. The membranes of the brain, and the brain itself, were quite healthy. The cyst, kidney-shaped, but flatter, measured in length seven inches and a half, and in width, one inch and a half in its broadest part. Perfectly smooth throughout its whole surface, the cyst was of a dark-fawn colour, with rusty coloured patches here and there. Around the margin of the cyst was a thin membrane, forming a broad, but perfectly smooth fringe. The cyst itself, when opened, was found to contain an ounce and a half of grumous-looking fluid, of a chocolate colour, evidently the remains of extravasated blood. After settling for a few hours, the more solid part of the fluid sank, leaving a blood-tinged serum at the upper part. Under the microscope, the sediment, in which were several small fibrinous clots, was made up of a mass of blood globules, mixed with granular cells, probably the white corpuscles of the blood, and a quantity of broken-down fibrin, with some well-formed crystals of hæmatine. The clots were composed of fibrin, more or less granular, and softened, and entangling blood globules and hæmatine crystals. The walls of the cysts were very firm, tough, and rather thicker than the dura mater generally. The internal surface, of a reddish hue, as if dyed by the coloured contents, was perfectly smooth and polished, except at a few points, to which some rusty coloured clots were adherent. Microscopically, the structure of the cyst was composed of fibres resembling those of fibrous tissue, but destitute of the cell fibres, which indicate a growing texture. There was no distinct lining membrane, but the internal layer of fibres was rather easily detached from the rest of the structure, giving somewhat the character of a separable membrane. There were no epithelial cells on its surface; but entangled on its substance were blood globules and hæmatine crystals.

The examination of this cyst, made by Dr. Richard Quain and myself, left no doubt on our minds as to the origin of this loose bag in the cavity of the arachnoid. It was a blood cyst, and nothing else.

But other cerebral affections have been known to follow a traumatic effusion of blood within the arachnoid—Insanity, for instance, of which the following case affords a most striking illustration:—

A young gentleman, at the age of 8 years, when at Winchester school, was struck by a cricket bat or ball, which caused severe concussion of the brain. This was followed by immediate symptoms of insanity, from which he, however, recovered for a time; but he was, soon afterwards, brought to London, as he was again labouring under an aberration of mind, and then placed under Mr. Fisher's care. From the time of the accident up to that of his death, a period of fifteen years, he had occasional fits of insanity, lasting two, three, four, or five months, with considerable lucid intervals. The last two years and a-half of his life were spent in MM. Stilwell's establishment, at Hillingdon. Tall, athletic, and capable of undergoing great bodily fatigue, this patient, to a common observer, appeared merely weak in intellect and loquacious in manner; but he still had occasional fits of insanity. His last illness was characterized by great pain in the head and great drowsiness.

At the after-death examination, a large pouch, containing 10 ounces of grumous blood mixed with a clot, and some red blood, was found in the cavity of the arachnoid, to the parietal layer of which it was firmly adherent. This enormous encysted collection of blood covered the whole of the upper surface of the right hemisphere, which was deeper in colour, and rather less in size, than the left. The visceral arachnoid, the pia mater, and the brain itself, were all perfectly healthy in structure. The bones of the cranium were much thinner than natural; at no part were they more than a quarter of an inch thick, and in places they consisted merely of the two tables. The right parietal, towards its anterior-inferior angle, presented an evident bulging, where the diploë had been entirely absorbed, by the pressure from within. The right half of the frontal and of the occipital bones, as well as the squamous portion of the right temporal, had been subject to a similar

action. The whole brain having been pushed over to the left side, had exerted on the left parietal bone a considerable degree of pressure, causing absorption of the diploë, but without any bulging. The left half of the frontal and of the occipital bones showed no signs of undue pressure. The left portion of the lesser wings of Ingrassias, and the corresponding part of the anterior clinoid process, were reduced to the thickness of a sheet of writing paper, almost to a cutting edge. When measured internally, the calvaria presented, in favour of the right side, an addition of half an inch.

Having, in March, 1846, been asked by Mr. Fisher to examine the dura mater and corresponding pouch above described, about the true nature of which there appeared to have been some doubt, I can fully corroborate the accurate description which was subsequently given of these parts by Mr. Hancock.

In this case we are able, fortunately, to trace the whole history of the disease, which, during life, was considered to be hereditary, the father of this patient having, curiously enough, been insane, from an injury of the head, caused by a fall from a horse, two years before the birth of his son.

Foville, also, in speaking of these encysted collections of blood in the insane, expressly states that, in one of his cases—that of an old soldier—the disease had been caused by a heavy blow on the head. And Blandin describes a similar collection, which he found on an insane person at Bicêtre, the history of which was distinctly traced to a sabre-cut, which the patient, an old soldier, had received on the right side of the head, at the battle of Waterloo. Traces of the blow were found both in the instruments and in the bones, to which this encysted collection of blood corresponded.

Here are three cases of insanity in connexion with encysted collections of blood, the extravasations of which we can distinctly trace to injuries. With accurate histories might we not thus bring back to accidents several cases of a similar nature?

Let us now proceed to the consideration of the extravasations of blood in the pia mater. Concerning these, I have but little to say. Extravasations of blood in the pia mater are less common than those within the arachnoid; at least, comparing a large number of these cases together, I find blood much less frequently in the former than in the latter. Almost always connected with more or less extensive laceration of the brain, these extravasations readily spread from the seat of the injury to distant parts. In the arachnoid, an extravasation of blood is seldom met with in the occipital fossæ, even in cases where it is plentiful in the cerebral region. In the pia mater, blood under such circumstances not unfrequently covers the whole cerebellum, and extends along the spinal marrow, and that, too, without any injury of these organs. Rapidly infiltrating itself into the meshes of the pia-mater, I have never seen the blood forming encysted collections such as those which are found within the arachnoid, neither am I aware that any cases of this kind have ever been observed.

We have no symptoms by which we can recognise an extravasation of blood in the pia mater. It appears, however, that both John Hunter and Sir Benjamin Brodie thought that these wide-spread extravasations are apt to produce more urgent symptoms than those collections of blood in one mass, which give rise to a less general pressure; but further experience has not confirmed this opinion.

Neither have we here the advantage which, now and then, may be met with in the effusions of blood within the arachnoid; for the constant infiltration of the blood in the pia mater precludes all idea of its being let out, even if the dura mater were laid open. All we can do, in such cases, is to treat them generally, according to the symptoms which may exist.

Lastly, we must now pass on to the extravasations of blood into the brain. In speaking of these extravasations, I wish, for the present, to confine myself to the collections of blood which may, in consequence of an injury, be poured out, either into the structure of the brain, or into its ventricles. The smaller or minute extravasations will find their appropriate place in contusions or laceration of the cerebral substance.

Injuries of the head seldom give rise to large extravasations of blood in the structure of the brain. Cases, it is true, occur now and then in which large collections of blood are met with in the brain after an accident,—but is the effusion in such cases always dependent upon the injury? I think not.

In dealing with the cases in which collections of blood are found in the substance of the brain after an accident, great caution is necessary, in order to avoid, if possible, mixing up cases of apoplexy with those of traumatic effusions. The surgeon must ever bear in mind that an accident coexisting with an extravasation of blood in the brain does not necessarily imply cause and effect. The previous condition of the patient's brain, or the outpouring of blood, may, in fact, have been the cause instead of the consequence of the accident. With a clear history of the accident, and especially of the previous state of the patient, there will, however, in the generality of cases, be little or no difficulty in deciding upon the nature of the case.

A man, aged 50, was admitted into St. George's Hospital, in 1849, with a small scalp wound at the upper part of the forehead, and slight ecchymosis of both eyelids. He had fallen from a pair of steps, but could give no account as to how the accident had happened. He was quite sensible, however, and stated that, for several days past, he had been confused in his head. With the exception of a slight wandering occasionally, this patient appeared to be going on well, when he was suddenly seized with well-marked symptoms of apoplexy, and died four hours after the attack. On dissection, a large quantity of blood was found extravasated in the meshes of the pia mater, forming a species of cap, covering the whole of the brain. All the ventricles of the brain were filled with clots of blood which had proceeded from the right corpus striatum, the structure of which was softened and extensively broken up. The bones of the skull presented no traces of injury.

In such a case as this, the true nature of the affection was obvious; but, supposing the extravasation to have taken place at the time of the accident—and what was more likely?—would not this case have been looked upon as one of traumatic effusion? In this instance, there was an interval between the accident and the attack of apoplexy; but, in many cases, we find ourselves deprived of any such guidance.

A middle-aged man, having fallen from a ladder about the distance of 18 feet, was admitted into St. George's Hospital in 1839, in a state of perfect unconsciousness, and bleeding from the nose. The left side of the face was paralysed, but strongly-marked convulsions existed in all the limbs. The breathing was stertorous, the pupils irregular and sluggish, and the pulse very quick and sharp. He was a stout, strongly-built man, with a large head, and short, thick neck. From the account given by his fellow-labourers, it appeared that he had fallen off the ladder without slipping, that no part of the ladder had given way, and that the steps were very broad, so that a person could stand on them without any danger. There were no appearances of external injury about the head. Shortly after being bled, this patient began to show some signs of returning consciousness; but, towards the evening, he became restless and violent. The left side of the head now presented an extensive bruise which effectually closed the eyelids. His wife, who came to see him in the evening, stated that he had never been subject to epileptic fits; but that, two years previously, he had suffered from determination of blood to the head. Having been actively treated, this man so far recovered as to be able to answer questions, and appeared to be going on well, when, on the third day after his admission into the hospital, and without any apparent cause, he was found lying in a perfectly comatose state, from which he never rallied. On examining the body, the coverings of the skull and its bones presented a natural appearance. No traces of injury were detected about the membranes, or any part of the surface of the brain; but two large extravasations of blood were found in the deeper parts. One, on the right side, was connected with the corpus striatum, and the other, on the left side, occupied both the corpus striatum and the thalamus nervi optici. This last extravasation appeared to have taken place more recently than the other one.

Doubtless this case was one of apoplexy, which itself was the cause of the accident, and yet it might be taken as a type of many a so-called traumatic effusion into the brain. I might bring before your notice several other cases of a similar nature, notes of which I have by me; but they would, one and all, only tend to *prove how* necessary it is for the surgeon ever to be on his guard, where there *exists the least* doubt as to the nature of the case.

Collections of blood in the brain, or in its ventricles, the result of an accident, may run through the numerous and well-known changes of a simple apoplectic effusion; changes which, in some instances, precisely resemble those already noticed in extravasation into the arachnoid. Such changes seldom, however, take place in traumatic extravasations, which are generally rapidly fatal, being, as they are, for the most part, associated with other severe lesions of the cerebral substance. —*Med. Times and Gaz., Dec.* 22, 1855, *p.* 615.

69.—*Aneurism of the Arteria Innominata treated by Compression.* By F. C. Skey, Esq., F.R.S.—[The treatment of aneurism by compression, as recommended by the Dublin surgeons, so as to block up the sac by fibrinous deposits, has been so successful that it is now generally adopted.]

We have seen several cases of popliteal aneurism treated through the past year in this manner, so that it now comes to be one of the recognised resources of the surgeon. We have watched also with some interest a very formidable case of aneurism of the innominata, we do not say cured by Mr. Skey, but certainly improved in a most marked manner by a new form of pressure, or pad adapted to the top of the thorax, where the aneurism, the size of a large orange, is situated.

The case is that of a man, W. D——, aged thirty-four, who has been some months in hospital. He states that five months ago he suffered a hurt, and "burst a vein," as he thought, in his chest; at least, he traces some hurt of this description to a parallel event, as Mr. Skey conceives—viz. the appearance of the aneurism externally. The treatment has been chiefly of a nourishing kind, with opiates occasionally, and steady pressure kept up over the tumour, which felt to us once or twice as if on the point of bursting. The effect of the pressure, which is still kept up steadily, seems to be, to thicken the coats of the aneurismal sac; the case, in every point of view, as remarked by Mr. Skey, being quite satisfactory as regards the good effect of the long-continued pressure.—*Lancet, Jan.* 5, 1856, *p.* 13.

70.—TREATMENT OF VARICOSE VEINS.

By Frederick C. Skey, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

[As a general rule, this disease is confined to the saphena major of the lower extremities, being commonly limited to the vessel below the knee. It is produced by a want of power in the circulation; and as the heart claims so large a share of the propelling power of the blood, we may infer that this organ is in the main the seat of the evil.]

Various have been the modes, and no less the degree of success, attending the treatment of this disagreeable disease. Some twenty-five years ago, varicose veins were largely experimented on in the various metropolitan hospitals of that day. The veins were divided, some directly, some subcutaneously; some were tied in one or more places, and some were laid open longitudinally with the lancet. The result of these experiments, performed, as I recollect, by surgeons of experience and judgment, was, however, by no means satisfactory, and death resulted on more than one or two occasions as the immediate consequence of the treatment. For a dozen years or more I have employed the Vienna paste as an escharotic, with a view to obliterate the saphena veins. I do not assert that this agent ought to supersede all other agents for this purpose; on the contrary I think it exceedingly possible that some other may be yet discovered possessing greater merit; but all I desire to assert on behalf of the Vienna paste is, that for a number of years it has carried my intentions into effect, without danger or evil of any kind, and that I have never failed, in a list of some forty or fifty cases, to accomplish the object of its application—viz. the entire obliteration of the morbid structure beneath. The Vienna paste is a compound of quick-lime and potassa fusa, in the proportion of about three of the lime to two of the potash. The two powders should be finely powdered and kept separate in stoppered bottles; and when required for use, they should be combined in a paste by the addition of spirits of wine. A hole is cut in the centre of three or four thicknesses of freshly-

made adhesive plaster, the aperture in which corresponds with the most prominent part of the vein. With regard to the number of these eschars, much will depend on the extent of the disease. If the vein be very tortuous and large, as many as eight or ten eschars may be required. I made on one occasion twelve in one leg and ten in the opposite leg of the same patient. With regard to size, I think they can hardly be made too small. When I first adopted this treatment, I thought the larger the destruction of surface the more efficient the treatment; but it is not so. The evil of large eschars is great, inasmuch as they produce ulcers of unnecessary magnitude, which are difficult to heal, and protract recovery often very considerably; whereas the destruction of the skin and tissues beneath, to an extent even within the breadth of the vein itself, is sufficient to the entire and immediate obliteration of the vessel. A circle of the fourth or third of an inch will, I believe, suffice for this purpose, even in the case of the largest vein. The plaster should be applied with some care, and made to adhere with exactness to the surface underneath. In determining the situation, I usually select the points in the track of the vein which are largest and most prominent; and on these, the plaster, prepared as above described, may be applied. It is desirable not to make the paste too wet, or the plaster will not retain it within the prescribed circle, and the result will be an eschar at least half as large again as that proposed. As to the period of its application, the destruction of parts will be complete in from twenty minutes to half an hour, towards the expiration of which, and indeed often much earlier, all pain has ceased. The plasters may then be removed, and the paste carefully washed off with a soft sponge. It is not very important what kind of application is now made to the surface, but I usually order a well-made poultice of linseed meal, to which a quantity of lard is added, and this is renewed night and morning until the eschars separate.

From the time of the destruction of the skin, the vein will be obliterated, and in a day or two subsequently, its presence will hardly be detected by the pressure of the finger. All that now remains is to force on the vital powers to the separation of the eschars and the healing of the circular ulcers, which will still expand by the elasticity of the skin around, as the sloughs separate from the living texture. Having described the condition of system inseparable from that in which the veins assume this varicose state, I need not tell you that you must draw largely on such agents, both medicinal and dietetic, as will promote healthy vital actions, such as bark, opium, iron, wine, brandy, and animal food. If your patient's bowels become constipated, remove their contents by a mild laxative; but as a general, almost a universal rule, leave the "secretions" to take care of themselves. Indeed, I will venture to say that I deem it of so much importance to retain in the alimentary canal all the nourishment that is attainable from the food, that I would suggest, should you adopt the opinion that man cannot enjoy health without the frequent employment of purgative medicine, that you had better leave varicose veins and their treatment to your neighbour. As a general rule, you may rely upon it that the actions of a man's bowels are far more likely to be diurnal and regular on a full diet than on a limited one.

In the month of July last I admitted a man into Abernethy ward, with extensive varicose veins of the left leg and thigh. Seven eschars were made on the vessels below the knee, and in a month the wounds had healed. Previous to the operation, he had suffered severe pain in the limb, and often to so great a degree as to compel his absence from work. I then proposed to him the radical cure of the disease above the knee, where the contortion of the vein was large, and its diameter was enormously increased, but he refused to undergo further detention in the hospital, saying that he had work before him of a more than usually profitable kind. At the expiration of two months he returned to the hospital. The cure of the veins treated by the Vienna paste was complete both as to sensation and to aspect, but he complained of severe suffering from the veins of the thigh. These were very prominent, and somewhat tender to the touch. I made eschars of about the fourth of an inch in diameter, on the four most prominent parts of the disease. On the following morning the whole surface was reddened and consolidated by lymph. The man suffered no further pain. The eschars came *away on* about the tenth day, and on the nineteenth the man left the hospital *cured.*

I have at the present time under my care an officer of cavalry, who has suffered for the last year or two from considerable pain in the saphena vein of the right leg and thigh. The locality was such as to prevent the requisite pressure of the knee against the saddle, and he consequently rode with difficulty. I destroyed the vein along a track of about fifteen inches, by the formation of seven eschars, four of which are placed below, and three above the knee. A month has elapsed since the operation. The sloughs have all separated, and the ulcers have closed to about half their largest size. The diseased vein is entirely obliterated. —*Lancet, March* 29, 1856, *p.* 334.

ALIMENTARY CANAL.

71.—TREATMENT OF HARE-LIP.

By Richard G. H. Butcher, Esq., Surgeon to Mercer's Hospital, Dublin.

[At what period of life ought the operation to be performed? Many contend that it is better to wait until the individual is conscious of the deformity, the patient can then lend his assistance, abstinence from food can be better borne, and the parts are better able to hold the needles. Sir Astley Cooper fixes the time at two years, when dentition is completed. Liston says, that the period from two to four years is certainly the time to be preferred. Syme also waits until the child is two years old. Velpeau prefers waiting until the tenth or fifteenth year, if the first six months have passed over. Chelius fixes the time at eight months. South at two years. Dupuytren at three months.]

I shall consider these objections, and see what advantages originate from early operation. As to enlisting the acquiescence of a child to suffer pain, from the time that it is able to appreciate danger to the age of eight or ten, this may be looked on as romantic and visionary. How can a child at this age realize the hopes of benefit, from the very moment that it is hurt by an operating instrument? According to my experience, it becomes the most unmanageable of all patients. It has been urged that the flesh of the young infant is not so susceptible of healing as at a later age. I cannot agree in this; neither do I believe it to be correct, for I have seen wounds inflicted almost immediately after birth cicatrize with amazing rapidity; further, we have a striking example of the reparative powers of the fœtus in utero, as called into existence under certain circumstances. I allude to that pathological lesion, in which portions of the limbs of the fœtus are removed by a process which has been, with propriety, denominated spontaneous amputation. Chaussier mentions having examined two cases in which separation of a part of the forearm had taken place before birth: and in a third case he found the separated portion of the arm and hand lying apart, *and the stump of the limb healed.* Other cases, similar in result to this, are published; a most interesting one by Dr. T. West, in which the child was still-born, with but one leg; the other limb exhibiting positive proof of having been spontaneously amputated some time before, the stump being *partially healed and nicely rounded*, about an inch and a half below the knee.

From what I have seen, I believe that the healing power, instead of being more feeble, is absolutely more vigorous in the infant; and as to the flesh not being sufficiently strong and resisting to give a hold to the needles, a contradiction is afforded by the numerous operations which have been most successfully executed at the tenderest age, even shortly after birth. Stress has been laid upon the abstinence from food, which can be borne in the more advanced period of childhood; but let us examine whether such an assumption holds good: the question is of some moment in a practical way. After operation the child is not inclined to take food for some hours; Nature throws a protective influence over the part, which is peculiarly remarkable where the operation has been delayed, and the little patient allowed to advance in years. I have seen a very unfavourable restlessness created absolutely by the dread of taking nourishment, for which the demand was urgent and pressing: but it is not thus with the infant operated on soon after birth: it sleeps for a short time, and upon awaking it readily takes the

breast, and while in the very act is again overcome with sleep, and hushed to repose in the warm and loving embrace of its mother. As regards the epochs of dentition and the likelihood of convulsions during such periods, there is no more danger, in my opinion, to be apprehended from the operation for hare-lip than after any other which it may be necessary to subject a child to. As to convulsions, I have never seen them arise in a single instance after the operation for hare-lip, either in my own practice or that of others.

In the second case of complicated hare-lip which I have detailed, it is mentioned that the child had slight convulsions on the morning and evening before admission to hospital, yet after gentle mercurial aperients there was no recurrence of them, and though operated on a few mornings after, they were not ushered into existence. From this instance and others which I have witnessed, I am led to the conclusion, that in many of the cases in which they are reported to have occurred after operation, a due attention was not paid to the condition of the bowels and general health. Mr. Fergusson writes thus: "An erroneous impression (as I suppose) prevails that children are remarkably subject to convulsions while undergoing operations; and this is often urged as a reason for not interfering with hare-lip in early life. Doubtless, convulsions have occurred in some of these cases; but similar effects have been produced in the adult, and by less formidable means, too. Sir A. Cooper has referred to several examples of this kind; but I imagine they must be rare indeed. I once asked the late Dr. Abercrombie, of Edinburgh, the results of his experience on this point, and he could not bring a single instance to his recollection where convulsions could be fairly attributed to an operation. In my own limited opportunities, I have never seen a case of the kind, although I have performed much more severe operations on newly-born infants than that for hare-lip could possibly be." In reference to the fatal effects apprehended from loss of blood and the fainting consequent upon it at the tender age of infancy, I shall thus remark,—that there should be no risk from either, if the assistant be vigilant, and the operating surgeon dexterous and rapid in his movements. Mr. Lawrence thus expresses himself:—"It has sometimes been said that children are liable to convulsions at this time (speaking of the operation for hare-lip) and that a considerable loss of blood may act seriously on them, so that they may die from the mere effect of the operation; this has not occurred in any case that has come within my observation." The age for performing the operation in cases of congenital hare-lip has formed the subject of a communication to the Royal Academy of Medicine, by Professor Dubois, who advocates an early operation, and has brought forward several cases in support of the proceeding. The patients were subjected to the operation at the following ages:—three on the second day after birth—one, a few days after—one, a fifth—and one on the fifteenth; four of the infants were allowed to take the breast; two were brought up by the hand; all the cases were successful. M. Dubois states, that if the child be sickly, and the hare-lip complicated with divisions of the bones, the operation ought to be deferred; but that when the child is strong and healthy, and if the fissure only affects the lip, it ought to be performed early. I shall not conceal Roux's opinion on this statement: he said it would be unfortunate if, on the authority of Professor Dubois' name, it should be concluded, that the operation ought to be performed early in every case: the facts recorded by him are relative to simple uncomplicated hare-lip; and in this respect M. Roux coincided in a great measure with him, although he is always fearful of dangerous results consecutive to operations in very young children, the more so, as he has witnessed several which terminated fatally. Mütter writes:—"Much dread of convulsions, sloughings, fevers, &c., exists in the minds of some when they refer to operations of this kind upon very young children; but I have, over and over again, succeeded without the occurrence of any untoward symptoms, in infants of three, four, and five days old."

I shall next endeavour to point out the reasons directly in favour of the superiority of infancy over a more matured age for its being made the period of this operation. It may be fairly urged, that when early put to rights, the parts recover themselves afterwards better than when they are permitted to remain and grow up misshapen. And there is one circumstance which never should be lost sight of or overlooked in coming to a determination regarding time, namely, that *the fissure* of the palate frequently closes of itself after the lip has been operated

on during infancy; and bad habits of speaking, such as nasal or guttural utterance, which, if once established, become irremediable, are averted. By the early operation the whole features are prevented holding for ever impressed upon them the characteristics of their misshapen originality; and who will not admit, that by removing such disfiguration from the face before the child has become aware of its presence, it is spared the feelings of humiliation which the consciousness of such deformity necessarily imparts, and which invariably gives a tone to the after character of the individual? By the early operation the feelings of parents are greatly gratified that the deformity of their child is removed before it is gone abroad into the world. We have conflicting opinions, then, by great men nearly balanced on the question. I have no hesitation myself in giving preference to the early operation. I do not think it fraught with as much danger to the infant as to the child at a later period; and most certainly, if performed by the same hand, I consider, with a far better chance of removing the deformity; the infant is so quiet, so unconscious of danger, so easily restrained, that the hard parts, if irregular, can easily be forced back into position; the incisions can be accomplished with the greatest accuracy and rapidity. Again, when the parts are placed in apposition, and retained so, there are no disturbing forces, for the muscles of the face have not been yet brought into action, or exercised by expression; and finally, I do not think the all-powerful law of the coalescence of opposite sides has become extinct, annihilated by birth, and therefore should be made available towards furthering reparation.

I have examples where I performed the operation at various ages, from twelve days after birth to the completion of the thirteenth year. I have watched over many with great anxiety, and am fully convinced that the safest period to the child for operation is from the termination of the first week to the end of the third month. No doubt it may be undertaken earlier, and has been with success in many instances; but I prefer waiting a few days after birth, in order, as it were, to allow the functions of the body to be healthily in action. During dentition some caution is requisite; but even during this process, periods free from irritation and fever will arise which may be taken advantage of for operation. As the child advances in life the deformity is greatly increased, and the operative measures, I believe, become far more formidable; besides, the parts within the mouth, when the palate is widely fissured, become so disproportionately formed, that intonation and voice become spoiled for ever after. By delay, the tongue may become too large to permit of operation with safety.

In reference to the selection of instruments for the operation of hare-lip, the comparative merits of bistoury and scissors require consideration. Many of the older surgeons were indifferent in their choice—Franco, Heister, and Ledran recommend either indiscriminately. However, in France the greatest number adopted the scissors, until Louis, with an exaggerated importance, proclaimed their inconveniences, and the advantages of the scalpel. At length, Desault, though shaken in his views by the authority of this celebrated man, by accurate investigation and diligent research, fixed his practice on the point, and used the scissors. Ever since Dubois' writings, the French school are in favour of the scissors; while the most distinguished operating surgeons of the English school prefer the knife. Mr. Liston, in advocating the superiority of the bistoury, has gone beyond the limits which experience will warrant, or a strict adhesion to facts support. He writes—"Paring with scissors is to be reprobated as an effectual means of preventing immediate union," while, by the employment of the knife, "bruising is avoided, and union takes place rapidly." I cannot conceive why Mr. Liston, so accurate generally in all his statements, should have penned such sentences as these; surely he must have seen instances in which the scissors-wound has healed as rapidly as that made with the sharpest knife? When the edges of the wound so made have refused union, it must be assigned to some other cause; for instance, even in Mr. Liston's own hands, though the knife be the instrument used, no union may take place in the cut edges. Mr. Fergusson, in the 'Medical Times and Gazette,' mentions such an instance. He says, relative to a little girl upon whom he was about to operate:—"The case was more especially interesting, as an operation had been put in force on two previous occasions, and the fissure in the lip, which was a simple one, had not united on either occasion; the late Mr. Liston

was one of the gentlemen who operated, and this is a sufficient guarantee that everything was done that could be for curing the deformity; but from some cause, which cannot be explained, union did not take place, and the affection still remained." Experience proves that the part cut by scissors never shows any contusion, and the neatness of the wound, whether made with knife or scissors, will greatly depend upon the hand that uses them. Malgaigne even goes further, and believes that pressure is, in certain cases, the best means of obtaining *clean* incisions—whence the necessity of extending and stretching the skin under the bistoury—and writes, "as this pressure is by no means so strong as with the scissors, we ought, in all cases where the parts may be divided at one stroke, to prefer them—the contusion is a chimerical idea." As to the amount of pain, Bell's experiment, where he cut off one of the borders of the fissure with the knife, and the other with a scissors, proves that the patient complained more of the first than the second incision.

In the numerous cases which I have given, I used the scissors for paring the lip; in all and in every instance the wounds have beautifully united throughout, sufficient evidence that the division made by the scissors is susceptible of union by *first intention*. I have used both the bistoury and the scissors, and freely confess I prefer the latter. When applied to the lip, after a sufficient degree of traction is exerted upon it, by drawing the tenaculum downward and towards the mesial line, I am convinced a more even and accurate section can be made than with the knife. It is no argument because in the hands of such men as Liston and Fergusson, beautiful operations are accomplished with the knife, that their method must be the best; for in skilful hands equal success often crowns both means. Fixing the lip with the tenaculum, is not so formidable a measure as that adopted by Dupuytren and Velpeau, of drawing a silk thread through it, while from the resisting nature of the instrument, greater precision is certainly obtained. Either mode is superior to that adopted by Liston and others, of holding the angle of the lip between the finger and thumb; for I have seen, when the fingers became wet with blood, the part slip away and the section made uneven, so as to require a second application of the knife, ay, and of the scissors too, to rectify the mistake.

Too much stress cannot be laid upon the form of needle which the surgeon chooses when he purposes employing the twisted suture. I have no doubt the coarse silver pins and "hare-lip needles," as they are called, with sliding points, and points capable of being removed on and off, have over and over again defeated the objects of the surgeon. From their clumsiness and bulk, when thrust into the parts, irritation is kept up, and frequently the inflammation passes beyond the bounds necessary for adhesion, and non-union of the wound is the result. Again, a portion may be united and another not; but even granted that the track of the wound heals favourably, openings, with loss of substance, are created from their pressure which are never entirely filled up after. The needle which I have been in the habit of using is sold as the common darning needle; it may be obtained of various lengths and thickness. It is a long, slender needle, ground into a triangular shape from its point upwards, for half to three-quarters of an inch. Owing to its great length it is easily introduced, and very manageable after transfixion. It will rest in the wound without falling out, owing to its length, until other parts of the operation are proceeded with; and from the delicacy of its form, and the sharpness of its point and edges, it traverses the lip with the least possible violence; it is so thin, round, and polished on its surface, it produces scarcely any irritation. After the silk is thrown around it, the point and eye are easily clipped off; and lastly, when the time of its removal comes, it is easily withdrawn without jerking or shaking the parts. In the application of the twisted suture, I would insist upon the following particulars being attended to:—First, the needle must be introduced a considerable distance from the edge of the lip, and not, as in accordance with the rule usually laid down, "that the point of entrance must be at a distance from the edge, equal to the thickness of the lip." *By piercing* far away from the cut edge, the needle is permitted to pass *close* to *the mucous membrane* without dipping, and not, as generally advocated, *two-thirds through* the substance of the lip. Second, when the silken cord (which *should be* coarse) is about to be cast around the needle, in the figure of eight form,

before any restraint is made by it, the cheeks should be shoved forwards by an assistant standing behind the child, and the cut surfaces absolutely in contact; the parts thus held up together are gently restrained by the turnings of the cord from retracting or receding into their original position, but there is no uneven constriction exerted on them, as occurs when they are forced together by the tension of the ligature as generally applied. As the result of the former mode, but little force is required to keep the parts in situ, therefore the needles are not dragged forwards, or made to produce an injurious pressure on the transfixed parts, terminating in ulceration; thus, through the entire depth of the wound adaptation of surfaces is insured with the slightest amount of force, every portion of it being exerted in the right way. By attending to these particulars, I have accomplished union with the twisted suture in the most perfect way in all the foregoing cases, and in many more not herein recorded. In addition to the twisted suture, it will be observed in the history of the foregoing cases, I generally put a point of the interrupted suture on the inside of the red border of the lip to prevent the edges gaping: the ligature acts a second part, it prevents the child's tongue separating the edges. To more fully carry out this latter object, I have passed the needle through the entire thickness of the lip, as recommended by Malgaigne; no exact rule can be laid down for regulating the time when the needles should be withdrawn; a good deal depends upon the tension by which they are retained. In some instances they must be left in longer than others; they must be carefully watched, and withdrawn on the first appearance of ulceration. I have given an example of the expediency of removing one, inclined to cut its way out, and replacing it by another near the locality. In the various cases, the details of which I have given, the needles were removed after the lapse of the following number of hours from the time of the operation.

Patient,	2 months old.—Needle removed		56	hours after operation.
"	10 days old.	"	70	"
"	19 months old.	"	72	"
"	13 years old.	"	78	"
"	15 months old.	"	72	"
"	6 weeks old.	"	67	"
"	12 months old.	"	58	"
"	6 years old.	Died from fright.		

In addition to the twisted suture, there are other mechanical appliances which may be employed with great benefit as auxiliaries in holding the edges of the wound together, the simplest of which consists in wide straps of adhesive plaster. The assistance to be derived from a force drawing the cheeks forward was not lost upon Desault, who invented a special bandage for the purpose, and which goes by his name. He has figured it in his work on Surgery, applied to the patient. Upon the cheeks are placed two cushions in the space circumscribed behind by the masseter; before, by the commissure; above, by the malar eminence; below, by the sides of the lower jaw. "An assistant fixes them by pressing them against the cheek and pushing them forwards." These pads are retained in their respective places by a bandage, which it is not necessary to describe here, and for the application of which I beg to refer to the original volume.

The great objection to this bandage rests in the fact, that the needles are pressed upon—therefore it should never be used; and on the same principle, when mentioning the application of adhesive straps as a useful accessory in keeping the cheeks forward, I have laid great stress in slitting them in a way that they cannot press upon or interfere with the needles. Mr. Fergusson makes mention of, and has figured in his Practical Surgery, a very useful contrivance, brought under his notice by an ingenious mechanic, Mr. Hainsby, who designed it to apply to the face of his own child, who had been already operated on twice unsuccessfully, once by the perfect hand of Mr. Liston. I have before alluded to this case when drawing a parallel between the advantages of the bistoury and scissors. The instrument consists of a spring which encircles the head from behind, and the two ends, terminating each with a pad, rest on the cheeks, which are thereby supported in the *position given to them. All* dragging or strain upon the sutures is thus pre*vented, and pressure upon the* lip, whether from the bones behind or otherwise, is

guarded against. Mr. Fergusson operated upon this case when failure had occurred already on two occasions, and he registers his success in these words:—"I am of opinion that the cure in this instance was owing in some measure to the ingenuity of the patient's father, and I would recommend this case to your consideration; for there are instances of hare-lip in which a surgeon will not like to operate, in consequence of the great amount of tension which will be exerted upon the edges of the wound, which will, almost with certainty, burst open again."

However, an instrument very similar to this was recommended more than a century ago. The direction in Verduc's book is to place the spring upon the head, with the ends resting upon the cheeks; but the instrument was objected to by several eminent surgeons, when it fell into disrepute. All the objections appear to have been merely theoretical. Le Charrière considered that by means of a circle of steel, which surrounded the head, and by graduated compresses, which he placed upon the cheeks, success would be unavoidable. For the purpose of replacing his bandage it has been modified since in various ways by Quesnay, Henkel, Koennig, Strickelberger, and Eckhold. Enaux and Valentine devised those which bear their name. The supporting spring of Le Charrière approximates most closely of all to Hainsby's apparatus. Mr. Quain, in commenting on an interesting case of complicated hare-lip, which he has published in the Medical Times and Gazette for July, 1852, states—"Heretofore I myself, before I had seen Verduc's proposition, applied to more than one surgeon's instrument-maker to construct a spring, with a view to another difficult case; but they did not succeed in making a useful instrument."

There are two very excellent cases of hare-lip, with protrusion of the central part of the alveolar process of the upper jaw, detailed in the Edinburgh Medical and Surgical Journal for July, 1830, by Mr. Dewar, and in which he used a steel spring, very analogous to that recommended by Mr. Fergusson. "It occurred to me," says Mr. Dewar, "that as a very slight degree of pressure on the cheek, on each side, near to the corner of the mouth, relaxes the upper lip, a narrow piece of steel, having a spring, might be so adapted as effectually to answer my purpose. I had, accordingly, a spring made, nearly resembling a pair of sugar-tongs, and so padded as to press on the cheek near the mouth. It was kept in its place by a narrow tape, tied over the chin, and by three tapes which were fastened on behind, and one on each side, to a piece of leather placed on the crown of the head. This simple contrivance answered every purpose admirably: I could relax the lip by it to any degree I wished, and it could be worn without the smallest inconvenience. The strain was thus taken off the pins, and the process of healing advanced in the most favourable manner." There can be no doubt, however, that "Hainsby's apparatus" is far superior to all others, for in its adjustment no pressure whatever is exerted over the cicatrix. The great superiority of this instrument is borne ample testimony to in an embarrassing case of cancer of the lower lip, in which I used it so far back as the year 1852, which has been published in the records of the Surgical Society.

In addition to the modes of incising the soft parts which I have described as practically applied in the foregoing cases, there are others proposed by eminent surgeons—the object of all being to try and do away with the notch which so frequently remains at the red border of the lip after operation. I have instanced a case where I made the semilunar incisions, and certainly a very beautiful lip was the result; there was no deficient point below. The curved scissors were used to effect this object. The instrument is a solid one, with knife-blades closely fitted. It answers the purpose admirably; and when this line of incision is desired, I can confidently recommend it as most suitable for the purpose.

In other hands this modification of the operation has not been very successful; I have seen after the method the centre of the most concave part not accept of union, and the space filled up with granulations, ultimately skinned over, creating a broad, marked cicatrix. M. Malgaigne adopts the following method: instead of *refreshing* the edges from below upwards, he incises them from above downwards, *leaving* the detached slip adhering by a small pedicle below; he then unites the *wound*, and, bringing the two little strips over the inferior angle of each edge of *the lip*, he cuts and trims them to fill up the depression.

M. Coste, chief surgeon to the Hotel Dieu of Marseilles, has proposed the fol-

lowing modification in the operation for hare-lip, so as to obviate the ugly notch which often remains below. He states that the plan proposed by Malgaigne is only applicable to double hare-lip, and that in the simple deformity an unsightly prominence is left. The author, in simple hare-lip (which lies generally on the left side), has succeeded in avoiding the notch altogether by cutting a horizontal flap in the red part of the lip on one side, and a kind of half mortise on the other. In paring the margins of the fissure he takes off more substance than is generally done; the flap and mortise are well secured by twisted suture, and by one of the diminutive spring forceps called "serrefines:" one transverse needle is placed a little higher up, and no application whatsoever made, so that the progress may be more accurately watched. M. Coste gives the instance where he thus succeeded upon a little boy two years of age in the most satisfactory way.

It matters little what method is followed, if the rounded margins of the lip be not freely cut away. If they are so, and the cautions observed in passing the lower needle which I have dwelt upon, the same happy results will be obtained by the method I have practically illustrated. In addition to what I have already written about the management of the central piece of the lip in the double form, I have only to add, that when it is large enough to come down on a line with the red margins of the lateral portions, and even covered with a red border, I do not save it to make a part of the lip below. I have seen it, when preserved, fail to accept the union on one or the other side, and I have also seen a double notch occasioned by its preservation. This central piece should be accurately fixed by one or two needles thrust through the outer flaps, and traversing it from side to side; it is a practice far better than the proceeding recommended by Gensoul of applying separate points of twisted suture to each branch of the V. Dieffenbach's Karlsbad insect needles may be equally efficacious as the fine cambric ones used by me. I ought to notice here that in latter years Sir A. Cooper gave the preference to the common interrupted suture, on account of the difficulty sometimes experienced in withdrawing the pins, and the liability of the new adhesions to be broken on the occasion; whereas the threads of the common suture may be cut and taken out with the greatest facility; but again, I repeat that any proceeding of the kind is inferior in every respect to the twisted suture as employed by me; at the same time I freely admit the candour of Sir A. Cooper in abandoning a coarse, clumsy method which was not suitable, and therefore, could not possibly be successful. The twisted suture, as I have described it, so perfectly accomplishes its end, that there is little hope or fear that M. Mayor's new kind of suture will replace it; it is called by the mattress-makers the quilt stitch ("le point piqué"). He pierces the left edge of the wound near its free end with a needle, which he introduces at a right angle from within outwards, drawing with it a double thread, at the end of which a ball of cotton is attached; by its pressure the edges of the wound are united, and by tying together the ends of the threads upon a ball of wool put between them, the union is supported, as he would lead the reader to infer, probably as well as in the seam suture.

A good deal of diversity of opinion prevails as to the best mode of dealing with the projecting maxilla and the detached central osseous piece in cases of complicated hare-lip. Some of the very highest authorities recommend cutting off the projecting piece. Sir A. Cooper says, "when the jaw itself projects, the common preliminary step to the operation consists in cutting away the bony prominence." Chelius likewise inculcates this precept in the following passage:—"If there be a bony growth in the cleft, it must, after the skin covering it has been raised, be removed with the nippers."* And again, "If the incisive teeth project, they must be extracted if of the first set; but if of the second, it must be attempted to give them their proper direction by continued pressure, and if this be not possible, they also must be extracted." On no account, in my opinion, should the projecting maxilla be cut away. In the youngest infants I have cut it back, rupturing its elastic structure, and, in more advanced life, after Gensoul's method, breaking it with a forceps and thrusting it back, and after either experienced but little difficulty in steadying the piece in its new berth. There is no doubt that in very young children, if *pressure* be steadily kept upon the part for a lengthened time, *it will be got back.* *Desault* effected this object by bandage, and in 'Cooper's *Surgical Dictionary*' is a case where the author was successful "by a spring truss

worn daily for several hours." But these methods become tedious and irksome both to surgeon and patient, and are not always effective. Other surgeons slice away the most convex part, or the outer laminæ of the projecting maxilla, the only object attained by this proceeding being the support afforded to the lip, but the teeth are for ever absent. So anxious am I to preserve the teeth in these cases, even when irregular, that I twist them with a forceps into a more seemly and better position before I break back the bone. When a central osseous piece projects, containing the incisor teeth, every effort should be made to save it. In one instance I adopted a novel method, and succeeded, which I trust may be practised by others, where the parts are similarly circumstanced. This portion, when so very prominent, must be got back or taken away to allow the soft parts to be united; therefore many surgeons, Liston, Fergusson, and others, take it away. If the attempt be made to push it back, the stalk breaks, and, in many instances, having no support, it falls down towards the mouth, below the alveolar range. Even in this unpromising state, the following measures may be tried. The edges of the central piece, almost always covered with a structure similar to the gum, being pared, as well as the anterior margins of the maxillæ, a strong needle should be thrust across (or a hole drilled for it) from one maxilla to the other, traversing a central piece; the ends should be clipped off as close as possible, and a few turns of silk thread thrown around to retain it in its berth: a bit of lint should then be put round each end to save the cheek from being irritated; after a few days the needle might be withdrawn and the remaining steps of the operation proceeded with; or I would have no hesitation in putting across the three portions of bone a metallic thread, as recommended by Flaubert, of Rouen, after a resection of the ends of the humerus in non-consolidated fracture of bone, and at once completing the operation.

As to the position in which the child should be placed for operation, I prefer the semi-erect posture. In this position the infant can be held, firmly rolled up in a sheet, in the arms of an assistant, and its head steadied in the most perfect way by a second. If the child be more advanced in years it should be secured in a chair by a few additional turns of a sheet. By this position the blood is prevented streaming backwards to the throat, giving rise to violent coughing and struggles for air; and the parts being more under the command of the surgeon, he can accomplish the necessary steps with the greatest possible accuracy, precision, and rapidity.

I have never availed myself of the anæsthetic agency of chloroform in this operation for hare-lip, for the following reasons:—I consider it impossible to measure the exact amount, so as to dull the sensibility of an infant, without risking the annihilation of the protecting influence presiding over the glottis; thus leaving it to chance whether blood may not trickle down, and suffocation ensue. In the child more advanced in age, if the chloroform be not given in sufficient quantity to produce its full effect, an increased violence and restlessness is invariably consequent upon its use. Once for all, I repeat, the risk is too great for its adoption.

I have endeavoured to apply cold, after Arnott's method, in these cases, so as to freeze the parts and destroy their sensibility before cutting—a practice which I have found most valuable in other operations; but I had a deeper object in view—that expressed and dwelt upon in the paper referred to, namely, to bring into operation "*the healthy action aroused in the part after its use.*" But in these instances I have been compelled to desist, from the great pain occasioned by the process of congelation, after a few minutes; indeed the child's cries and struggles to get free were as vehement and forcible as during the most protracted operation. Therefore I have with some reluctance relinquished it as a means that cannot be be employed.—*Dublin Quarterly Journal, Feb.* 1856, *p.* 1.

72.—ON THE TREATMENT OF CONGENITAL DEFICIENCY OF THE PALATE.

By GEORGE POLLOCK, Esq., Assistant Surgeon to St. George's Hospital. (Read before the Royal Medical and Chirurgical Society.)

[The object of this paper was not to bring forward any new operation so much as to draw attention to the fact, that few exceptions exist in which the fissures of the hard palate cannot be effectually and permanently relieved by operation.]

In the relation of the cases, and the sequel of the paper, the following points were insisted upon:—The line of the first incision of the edges of the cleft ran along the line of union between the mucous membrane of the mouth and that of the nose. It is made with a knife, consisting of a flat piece of steel, bent at a right angle, about a quarter of an inch from the extremity, the cutting edge of which is about an eighth of an inch broad in the centre, and rounded off narrower to each end; a much broader knife, of the same character, is used to detach the soft parts from the bone, an operation requiring great care, to avoid lacerating and bruising them. Knives bent at various angles are required for various parts of the mouth, and one was recommended, the blade of which should be acted on by a screw; they should be strong and firm, and as broad as can be conveniently used. The edges, when detached, should never be brought together by sutures, unless they fall and meet together without traction. The author advocated the introduction of a suture through each of the curtains of the newly-detached palate, as preferable to the use of forceps, when manipulating them. The ends of the sutures are brought out of the mouth, and tied in a knot, so that there may be no fear of their being withdrawn, and thus the flaps can be raised or moved about without fear of bruising or lacerating the edges, one of the most frequent causes of failure of union. When the flaps or curtains do not meet of their own weight in the mesial line, a curved knife is introduced through the palate, near the last molar tooth on each side, and pushed upwards and inwards between the bone and soft parts, until its point is seen in the fissure, when the blade is moved slightly backwards and forwards. Lateral incisions may also be required. The author strongly insists on the propriety of not attempting too much at once, and for these reasons: the separation of a large surface greatly interferes with its nutrition; both anterior and posterior palatine arteries would be divided at the same time, and sloughing rendered thereby probable; the length of the operation, and consequent fatigue and pain to the patient. The author prefers to operate upon the hard palate first, because the anterior palatine artery being usually divided in that procedure, flaps obtain ample nourishment from the posterior palatine vessels; and again, firm union of the new-formed palate is usually followed by a sensible diminution in the breadth of the fissure of the soft palate. Again, it is the more tedious and painful operation of the two. In operating on the soft palate, the author advocates a novel mode of dividing the levator palati muscle. The flap being put on the stretch by the traction of the suture above-mentioned, a sharp-pointed, double-edged knife is run through the side of the palate, on the inner side of the hamilar process, which can be readily felt through the soft parts. The point being kept in a direction upwards and inwards is soon seen to have passed through the soft palate, and projecting into the gap of the fissure above the line of the levator. The handle is next raised, and a sweeping cut made along the posterior surface of the soft palate. The knife, being withdrawn, leaves but a small opening in the mucous membrane, and the levator is found to be freely divided. If this proceeding do not sufficiently liberate the curtain, the incision may be carried down to the free margin of the soft palate. Sutures should never exert the slightest traction or pressure. Their removal, of course, will depend on the circumstances of the case; but usually the first may be removed on the third or fourth day. After the operation, fluid or pulpy food should be given liberally: it is very important to insist on this, as the patient will otherwise be deterred by the pain of swallowing. Whiteness and coating of the tongue after operation are not to be considered indications for the administration of physic; nor are various conditions of the tongue and the fauces previous to operation, and which are due to the absence of the hard palate, to be regarded as indications of defective general health; the latter, however, should always be perfect at the time of operation. The operator upon the

hard palate is not to be discouraged by failure in gaining union at first, for parts which were thin and scanty are often rendered thicker and more vascular by separation from their attachments. When attempts are made to close an aperture in the palate, caused either by malformation or disease, after paring the edges and separating the soft tissues from their attachments, lateral incisions are frequently necessary; and great general support may be given to the sutures used below the wound, by passing a broad suture through the lateral incisions, and thus including both flaps within its embrace. And this is not its only effect; it prevents the healing of the lateral incisions until the opening has had time to unite. Its use is preferable to that of sponge or of lint introduced into the wounds. As chloroform is not applicable to these operations, a degree of self-command and endurance is required, which cannot be expected in an individual under the age of 17 or 18, at which period also the development of the parts affected may be presumed to be nearly completed. Mr. Pollock suggests, in conclusion, that although in all cases in which operative procedure has been attended with success a great improvement has invariably been noticed in the speech and articulation, yet much remains to be done by education. Efforts must be made to change the acquired habit of pronunciation for a new method of articulation, which may be best and easiest effected by the patient repeating words after a teacher, or reading aloud, subject to correction. Difficulties in this respect will, however, often be found to depend upon the fissure in the alveolar ridge, or irregularities of the teeth.—*Lancet*, *Feb.* 2, 1856, *p.* 127.

73.—DEEP ULCERATED CLEFTS IN THE TONGUE.

By Dr. Christopher Fleming, Surgeon to the Richmond Hospital, Dublin.

[A butcher's assistant, aged 33, who had previously suffered from syphilis, was admitted into hospital with fissures on the dorsum of the tongue, which gave him great pain on taking food.]

On examining the tongue, its dorsum was furrowed with two deep sinuous ulcerations, almost parallel to each other, the extent of which towards the base can only be seen by considerable traction forward of the apex, the voluntary protrusion of the organ being comparatively limited. Towards the base these sulci all but joined each other. Their depth was not less than three-fourths of an inch, and their length somewhat more than an inch. Their surfaces were covered with an orange-coloured tenacious matter, their edges were sharp, abrupt, and in some portions undermined. The body of the tongue was full, and its under surface of a dark congested appearance. The mouth was filled with saliva, and there was no fœtor worth noticing.

This affection of the tongue was solitary—no other symptom could be discovered which was not identified with the general temperament of the man. He was not much emaciated. He had no articular or other pains—no eruption—no marks of cicatrices of former cutaneous diseases of syphilitic taint. What preparation of mercury, or what amount of that specific he might have taken for the venereal attack noted, he could not state, but it was evident, from the mutilated condition of the penis, that the original character of the disease was more or less phagedenic.

At the expiration of a month after the admission of this man into hospital, he left with the ulcers of the tongue perfectly healed, and with obvious improvement in his general health. The local treatment adopted was the application of nitrate of copper to the ulcerated surfaces, its repetition being directed according to the condition of the ulcers, and the substitution of weak lotions of it, or the "oxymel cupri subacetatis," as the curative stages advanced. The general treatment, in the earlier stages, consisted in the exhibition of chlorate of potash in gradually increased doses, from five to ten or fifteen grains, in combination with bark and sarsaparilla. In the after stages iodide of potash and iodide of iron were given *in conjunction* with the same medicine, and occasionally with cicuta.

I have repeatedly seen this man since his discharge from hospital. He continues at his former occupation, is free from any return of his complaint, and the tongue, though contracted and pursed up at its base, appears to answer all useful purposes, and to give him no annoyance whatever.

The practical lesson we learn from this case cannot be exaggerated; its details dispense with the necessity of any comment; but the use of the chlorate of potash deserves trial in cases of a similar nature; in this it was most beneficial. Respecting the use of this medicine, I may remark, that I know of none more likely to give satisfactory relief in the treatment of those equivocal ulcerations which occur at the back of the pharynx or in its vicinity, identified with which I viewed the ulcer in Scully's case. Iodine and its preparation with potash and iron may be of use, but the essential improvement first manifests itself whilst the chlorate of potash is being exhibited. Many most aggravated cases have passed through hospital, where its effects were most gratifying. Of course, I allude not to ulceration of the tongue—such cases are very rare, indeed. The following extract from the passage I have alluded to, respecting the application of the nitrate of copper, may, perhaps, not be inapposite:—

"I have tried many local applications, and amongst others, the acid nitrate of mercury, but I have found none equal to the nitrate of copper. It is most invaluable as an application to this class of ulcer; and I may remark, that it will be found equally so in many of those small excavated ulcers of a semi-phagedenic character, which occur on the genital organs both of the male and female. It is a very deliquescent salt, and can be applied only in the liquid state. The surface of the ulcer should be well dried before it is applied, and afterwards covered with oil; and it should be borne in mind, as regards the tongue, that the superficial appearance of the ulcerated surface is often most deceptive, as the disease burrows very deeply. The best mode of fixing the tongue, for the purpose of applying the caustic, is by means of the fingers and thumb, a portion of lint, linen, or a towel being interposed, so that it cannot slip; and the best instrument for the application is a small piece of cedar, as prepared for paint brushes, the ends of which may be covered with lint or French wadding, one end being dipped in the nitrate of copper, the other in the oil, whereby no delay or confusion can ensue."—*Dub. Hosp. Gazette, Dec.* 15, 1855, *p.* 346.

74.—ON STRANGULATED HERNIA.

[The following cases afford many practical points of interest, but particularly in reference to the propriety of opening the sac.]

1. An oldish woman was operated on by Mr. Cock, at Guy's, for femoral hernia; strangulated sixty hours. The intestine was returned without opening the sac. The woman seemed to do badly after the operation; bowels not opened except by enema; when, in about eight days, an artificial anus established itself; the flow of fæcal matter continued for some weeks; it then gradually ceased. The hernia being at the right side, the parts about the ileo-cæcal valve were, in all probability, engaged. In discussing with Mr. Cock the propriety of operating in this case of hernia, and relieving the stricture *without* opening the sac, this experienced surgeon seems decidedly in favour of this plan. We gain nothing, he thinks, by opening the sac; we may, on the contrary, lose a great deal by doing so without necessity for it. This should be our rule. But, in practice, we may find reasons sometimes to deviate from it. In this case, it will be observed, though the sac was not opened, it did not prevent the establishment of a fistulous communication with the gut.

2, 3. In these two cases, occurring at St. George's Hospital, the sac was opened. One was under the care of Mr. Pollock: a woman, in whom a hernia (femoral) was strangulated for thirty-six hours; the second was under the care of Mr. Tatum, the hernia strangulated thirteen hours. Both cases recovered. In neither, perhaps, was there a necessity for opening the sac, if the surgeon could have ascertained the state of the parts *after* the operation as well as *before* it. Acting on the safe side, however, the sac was opened. Were the cases not so favourable, it might also be urged, the symptoms might be aggravated by opening the sac.

4. A very marked and suggestive case, at the London Hospital, operated on by Mr. Ward; strangulation had existed about twenty hours. Chloroform and the warm bath in no *way aiding* the taxis, Mr. Ward determined to divide the stricture, *cutting freely both the ligamentous fibres of Gimbernat's ligament and Poupart's ligament.* The stricture, however, existing in the neck of the sac, these

incisions were not sufficient, and he decided to open the sac itself. The gut was much congested, but safely returned. Opium was freely given after the operation, with apparently good results, as on the third and fourth days the woman was decidedly better. On the fifth day, however, the result of the strangulation became too evident, as the bowel gave way. We have seen this woman several times since; she has progressed quite satisfactorily to a perfect cure.

5, 6. We may here record two other cases of Mr. Cock's, as they bear out his views of the dangers of opening the sac, the danger in a great measure, however, being due, perhaps, to the neglect of such cases before they are sent, in an almost hopeless condition, to hospital. One of these cases was that of a woman, about sixty years of age, (the age of his former case.) The hernia was accompanied by peritonitis, or that fatal tenderness all over the abdomen, on which Mr. Stanley lays such emphasis, as the worst symptom of all in hernia. The sac was obliged to be opened, as in Mr. Ward's case. The bowel, however, never acted afterwards; it was adherent with lymph. The woman died, a few days after the operation, from the effects of the neglect in not sending her to hospital earlier, and of unskilful manipulation out of doors. A man, about fifty years of age, was operated on, in July, at Guy's, by Mr. Cock. The case was one of strangulated inguinal hernia, the symptoms so very severe, for more than forty-eight hours, that feculent vomiting had set in. Mr. Cock divided the stricture without opening the sac, according to his rule; but not feeling satisfied in his own mind that all the hernia had been reduced, though the gut had apparently gone up—a feeling often experienced, it must be confessed, by those surgeons who have much practice in hernia cases—he decided to open the sac, and leave nothing to chance. The intestine, as suspected, had been returned, but a large fold of diseased omentum still remained; and what was to be done with this now became an anxious and difficult question. Part of the omentum was healthy, but another part was very much injured. The latter Mr. Cock proceeded to remove; the former was returned into the abdomen. After the operation, diarrhœa set in, and though opium was given, the man sank in twenty-four hours. At the post-mortem examination, the knuckle of intestine, still discoloured, was found, almost unchanged. Below the seat of stricture, the bowel was empty and contracted; above this point, very much dilated and distended.—*Lancet*, *Oct.* 13, 1855, *p.* 338.

75.—CASE OF STRANGULATED HERNIA.

By Samuel Solly, Esq., F.R.S., Surgeon to St. Thomas's Hospital.

[William A——, aged 70, had double inguinal hernia for twenty-five years, that on the left side being by far the largest, but never having given him any trouble; the one on the right side, though much smaller, had often given him much pain to reduce it. This case serves to illustrate the fact, that a small hernia is generally more dangerous than a larger one. Three days before admission it came down again, but thinking it would return as usual he did not apply for relief, until he was driven to it by the pain, vomiting, &c. On examination it was found to be very hard, tense, tender, and about the size of a hen's egg. As the taxis and warm bath did not succeed in reducing it, it was determined to operate immediately. We may here remark, that persons who have long been the subjects of hernia, generally manipulate their own case better than even the best surgeon, and if the patient cannot return it, it is very seldom that the doctor can. Therefore, in most cases, it is worse than useless, nay, dangerous, to try the taxis at all.]

With regard to the operation, I may first call your attention to the way in which I made my first incision on this occasion; not that I pretend to any originality in it, but you will find that it is a good plan to follow. You might observe that I nipped up a fold of skin over the neck of the tumour; one extremity of the fold I held in my right hand, the other was held by Mr. Fernie, our house-surgeon; and then, running a sharp-pointed bistoury through it, I had at once an incision about an inch and a half long, through the skin and superficial fascia. This incision is *thus* made more rapidly and with less pain than one with a scalpel cutting down *over* the surface of the tumour; and in hands unaccustomed to operate there is less

danger of opening the sac unintentionally, or even the gut, as I have seen occur before now. You should next divide the other coverings of the sac, using the knife horizontally, having nipped up the tissues in succession with the forceps until you reach the peritoneum. Do not divide this—that is, do not open the sac, if you can avoid it, but divide the stricture external to it, as you saw in my operation on Monday last. The danger of the operation is much less if you do not expose the intestine. I have no hesitation in saying that, as a general rule, it is much better to avoid opening the sac. You might observe that as soon as I had exposed the sac I felt for the stricture with my little finger, and upon that divided the stricture. Always use your finger for this purpose in preference to a director. You will find that the probe-pointed knife is better for this purpose than the ordinary hernia knife; you are less liable to injure the sac. When you first attempt to perform this operation you will not find it so easy as it looks to divide the stricture external to the sac, and I cannot tell you exactly why. There is a knack in it, which, however, you will soon acquire with a little practice. After having divided the stricture, you gently press the sac between the finger and thumb, and if the contents all *pop* back, if I may so express it, leaving the sac quite empty in your fingers, you may be satisfied with the result; but if you do not empty the sac, feeling that something remains behind which you cannot get rid of, you should then open it to discover the cause. Most probably you will find an adherent intestine or portion of omentum; or if the contents of the sac suddenly give way, and the sac feels soft and not empty, you may apprehend a gangrenous intestine, and then you must open the sac. If you are operating on an old-standing hernia, where the patient tells you he has never been able to return the whole, you may expect to be obliged to open it.

The first time that a pupil sees an operation for hernia he is sure to mistake the sac for the gut, they are so much alike. How are you to distinguish them? There are certain circumstances to attend to which will assist you, but nothing except frequent personal observation of these operations will make you confident of the distinction. Never lose an opportunity while you are here of attending them. When the sac is opened there is an escape of fluid in ninety-nine cases out of a hundred, sometimes more and sometimes less; if therefore there has been no such discharge, you may be nearly certain that you have not opened it; but this is not without an exception, for I have opened a sac which has been so tensely filled by the gut that there was no room for any fluid. The direction of the bloodvessels on the peritoneum is different from those on the gut; they meander about in an arborescent irregular form. On the surface of the intestine they run at right angles to the canal. Then again, if it be intestine, by drawing it gently forward, you will see the mesentery, but you cannot move the sac from its position.

With regard to the treatment of the wound after you have completed the operation, bring the edges together; raise them, and with another hand to assist you, put in two or more sutures to keep them in close apposition. Over that place a piece of lint, and then the strapping, as you can thus keep the edges better in contact than with the plaster next to the skin. A figure-of-8 bandage, nicely and tightly applied, will act as a temporary truss, while the patient is confined in bed. I always order a dose of calomel, two grains, and opium, one grain, to be given immediately. Do not be anxious to get the bowels open; never mind if they do not act for the next twenty-four hours. If there are any signs of peritonitis, continue the calomel in two-grain doses, with only half or quarter of a grain of opium. At the end of about thirty hours, if the bowels have not been evacuated, give a simple enema, and if this does not answer, then a dose of castor-oil. Of course it is very satisfactory to see the complete success of your operation by the passage of the fæces along the lately-strictured gut, but remember that you do not secure the ultimate success which you aim at by forcing the injured intestine to act before its natural circulation is properly restored. And of this you may be certain, that if there is any local peritonitis, you are doing the most certain thing to diffuse it generally over the peritoneum, by inducing peristaltic action, and carrying the effused lymph through the cavity of the abdomen. This man has gone on without a bad symptom; he is free from pain or tenderness in the abdomen, his tongue is clean, and to this I attach the greatest importance, much more than

to the pulse, as an index to any inflammatory mischief. The pulse varies very much in different individuals, and, alone, is a very deceitful guide; in this case it was soft and quiet, and though nearly forty-eight hours have elapsed since the operation, and the bowels are not opened, I feel no anxiety.—*Lancet, Nov.* 17, 1855, *p.* 459.

76.—*Operation for the Radical Cure of Hernia.*—M. DE BOUBAIX has described, in the "Presse Médicale Belge," a new operation devised by him for the radical cure for hernia.

The hernia having been reduced, and the integument being pushed into the orifice, the operator seizes that portion of the skin which lies immediately over the spermatic cord and femoral vessels, so as to form a vertical or slightly oblique fold; this fold is raised as much as possible, its base is transfixed with a straight bistoury; and it is cut through from behind forwards. From the extremities of this incision two others are made, of a semilunar form, with their concavities looking towards each other, and approaching each other towards the upper part of the hernial orifice, leaving a sufficient space for the nutrition of the flap. The flap is introduced into the orifice so as to form a plug.

The edges of the ring and of the skin have now to be united. To effect this, M. de Roubaix draws firmly together the edges of the incisions and the neighbouring skin; then, the left index finger or a small gorget having been introduced into the transverse aperture, the integuments and the aponeurosis are connected by means of a small trocar. He then introduces through the canula a piece of platinum wire fitted to receive a small screw at each end. If convenient, a second platinum wire may be introduced. An oval piece of gutta-percha, with a small hole in the centre, is passed on each side over the wire, so as to come in contact with the skin. The pieces of gutta-percha are then drawn together by means of the screws. In this way, a longitudinal wound is obtained, the edges of which are brought into apposition by the twisted suture, care being taken to leave the lower part free for the escape of pus.

The advantages of this procedure, according to the author, are:—

1. The hernial sac being untouched, and the lesion of continuity affecting only the skin and aponeurosis, there is no danger of peritonitis.
2. There is no danger of injury to the spermatic cord and femoral vessels.
3. The cutaneous flap, having its pedicle upwards, is not liable to be drawn downwards either by the weight of the scrotum and testis, or by the movements of the thigh.
4. The hernial orifice is narrowed and partially obliterated, and in front of it is placed a powerful obstacle which adheres to and fortifies it.
5. In front of the vessels and cord there is a firm cicatrix, which, by its connexion with the plug and the adjacent parts, forms an impassable barrier to the viscera.

M. de Roubaix has performed this operation successfully on a female aged 61, who had suffered for twelve years from a large femoral hernia, which descended as far as the patella.—*Gaz. Med. de Paris.—Association Med. Journ., Jan.* 19, 1856, *p.* 48.

77.—ON SOME POINTS IN THE SURGERY OF HERNIA.

By NATHANIEL WARD, Esq., Assistant Surgeon to the London Hospital.

[The following remarks are drawn principally from cases of strangulated hernia, which have occurred in the London Hospital, during the last four or five years. Many of the cases have been previously grouped and commented upon in a small pamphlet, published a short time ago. Taking these together we have 100 cases which have been operated on, and these will show fairly the results of treatment.]

Of the 100 cases alluded to, 4 were umbilical, 63 femoral, and 33 inguinal. The aggregate mortality amounted to 33. Three deaths occurred amongst the umbilical, 19 amongst the femoral, and 11 amongst the inguinal class. The peritoneal sac was opened in all the cases of umbilical hernia; of the 63 femoral it was *not opened in* 42, and opened in 21. The average period of strangulation in the former amounted to thirty-seven hours and a fraction, and of age to 52 years: in the

latter, that of strangulation to 57 hours and of age to 56 years. Amongst the forty-two cases of unopened sac, of the 32 that recovered the average age was 47; and of the 10 that died the average age was 66. Of the 21 cases of *opened* sac, 12 recovered, the average age being 54, and 9 died, the average age being 59. Of the 63 collectively, 9 occurred in the male, and 54 in the female; 43 were on the right, and 20 on the left side. Of the 34 cases of inguinal hernia, the sac was not opened in 10, and opened in 24. The average period of strangulation, in the former was 28½ hours; in 18 of the latter, 30 hours. Of the cases collectively 25 occurred on the right, 9 on the left side: all took place in the male subject.

On glancing over this analysis, we are struck in the first place with the fact of the operation without opening the sac having been performed much more frequently in cases of femoral than of inguinal hernia. The greater applicability of Petit's operation to the one class than the other appears to be attributable to the fact of the neck of a femoral sac not undergoing hypertrophy so frequently as the neck of an inguinal sac. In the latter, the pad of the truss bears directly on the narrowest portion of the sac, which is usually situated at or near the immediate neighbourhood of the outer ring, and this narrow portion receives a counter pressure from the pubes. In the former or femoral, the pad bears mainly on the body of the sac and not on the neck; we consequently find more thickening in the structure of the neck of an inguinal than of a femoral sac, a less amount of capability of yielding, and a smaller calibre. The neck of an inguinal sac offers therefore a greater impediment to the reduction of strangulated bowel than the neck of a femoral, and necessitates the more frequent opening of the sac. I of course exclude from this remark quite recent cases of inguinal hernia, and also those cases of large, irreducible inguinal herniæ in which the pressure from within has ultimately gained the better of the resistance from without, and in which a recent additional protrusion has been followed by symptoms of strangulation; for both to the one set and to the other, the operation without opening the sac is peculiarly appropriate. I limit the remark to those cases of inguinal protrusion of intermediate duration which most frequently demand surgical attention, and in which the contents have been reduced, and retained in the abdomen by a truss, which temporarily occludes or diminishes the calibre of the neck of the sac, and by the irregular and inconstant pressure it exerts, leads to the thickening of its walls. In the second place, we observe, *that in the forty-two cases of femoral hernia in which the sac was unopened*, the period during which symptoms of strangulation had lasted prior to the operation was less *by twenty hours* than the period of strangulation *in the cases in which the sac was opened*, and that the age was less by four years. I should have also mentioned in the analysis that the average day of recovery in the unopened series was the twenty-third, the average age also being less by nineteen years than in the unopened cases that died; in the opened series, the thirty-first day. In two of the former class the wound had healed on the fifth day; in one case the recovery had taken place on the sixth, eighth, ninth, tenth, and twelfth day respectively. The shortest period in which a case of unopened sac had recovered was the tenth day; and after this the twenty-first day was the next earliest period. Now, it is admitted on all hands that the chances and rapidity of recovery after operation, both in cases in which the sac had been opened and in those in which it has not, materially depend on the length of time the bowel has been subjected to mechanical obstruction and its consequences. Post-mortem evidence also corroborates the conclusion, that the amount of intestinal lesion, and the risks of abdominal inflammation, bear a direct proportion to the period and intensity of strangulation. Based on this conclusion, the propriety of an early operation has become prominent to the mind of every thoughtful surgeon of the present day, and his great anxiety is to relieve a strangulated rupture before its organic capabilities have been seriously interfered with, well knowing that procrastination, even for a few hours, will now and then lead to a fatal result, in consequence of gangrene of the gut, collapse, peritonitis, or other fatal complication.

For the formation consequently of an unbiassed estimate of the causes that determined the relative result after the peritoneal and extra-peritoneal operations, in this series of cases, the period of strangulation should of necessity constitute a primary feature in the calculation. Considering then the short period in which the gut had been strangulated in the series in which Petit's operation had been

had recourse to, the less advanced age of the patients, and the comparative healthy state of the bowel, it becomes a question of interest to determine, whether *in these very cases of unopened sac*, the addition of a peritoneal incision, the exposure and manipulation of the gut would have influenced injuriously, to any great extent, the ultimate event. The expression of opinion on this matter cannot be considered as decisive. It is quite clear, however, that had the sac been opened, in this series, something would have been done not required by the exigencies of the cases; and to repair that additional something, which could be looked on in no other light than as the infliction of an injury, a prolonged effort at restoration would have been required on the part of the system. The progress to recovery would in consequence, no doubt, have been retarded, without, however, the certain addition of enteritic or peritonitic symptoms, which I think no one could deny would be more likely to ensue from prolonged mechanical obstruction to the intestinal circulation, than from an exposure of the bowel and incision of the serous membrane. My own opinion is, that the risk of leaving the bowel unrelieved *for a long period—say thirty hours*—and then *operating without opening the sac*, would be greater than relieving *the bowel at a comparatively early period of strangulation—say twenty hours—and opening the sac.* I should even not be surprised to find that if ten cases of strangulated hernia, in which the symptoms of obstruction had been of short duration, and exactly similar in every respect, were operated on without opening the sac, and ten of a like nature by opening it, all the operations being performed by the same surgeon, in the same manner, and with an equal amount of skill, that the results as to recoveries and deaths would be alike. I should think, however, that the period of recovery would be longer, and the attendant casualties during and after the operation would be greater in those instances in which the sac had been opened, than in those in which it had not been opened. I would refer, therefore, the more favourable termination, as established by this analysis, in cases of unopened sac, mainly to the early period of operation, and the less advanced age of the patients, without in any way denying that the limited nature of that operation, *though not usually of vital importance*, contributed essentially to the safety and the rapidity of the cure. We have direct evidence on the very point of early herniotomy, in which the sac was opened, in a very interesting *résumé* of a series of cases that have occurred at St. George's Hospital, published by Mr. Prescott Hewett in the 'Medical Times and Gazette' of Sept. 23rd, 1855.

Mr. Hewett states, that the rule at St. George's Hospital is the reverse of that adopted at the London Hospital, being, in fact, to open the sac freely. The mortality amongst 75 cases, in which this plan was adopted, amounted to only 19; the operation having been performed, as we glean from the context, as early as practicable, with every amount of attention to a previous cautious use of the taxis, and a subsequent non-purgative treatment. This result, I think a very good proof, as far as it goes, that opening the sac, although it may retard the progress to recovery, is by no means of that serious or fatal character entertained by many of the advocates of the extra-peritoneal operation. Mr. Hewett "considers, however, that if cases of hernia were seen at a much earlier period than they commonly are at our hospitals, and if protracted efforts at reduction were more generally given up, that the rule of not opening the sac would find many more advocates than at present." In this remark I perfectly agree: and for the sake of surgery, and the relief of suffering, should be glad to see this view practically acted up to.

Independently of these 100 cases that have been operated on during the last four years and three quarters, 254 other cases of hernia have been admitted, the patients suffering more or less from the symptoms of strangulation, but who have been relieved by general or local measures—the use of the warm bath, chloroform and opium, the taxis, and application of cold. The taxis has been found, with few exceptions, of eminent service, and has frequently done away with the necessity for an operation, which, prior to its application, seemed imperatively called for; and I can call to mind several cases in which it succeeded when no impulse could be detected in the body of the tense tumour. This reduction of bowel into the abdomen by manipulation requires, of course, in its use, extreme care, delicacy, and tact, and will frequently succeed in the hands of one understanding the principle of the proceeding, whereas it will fail over and over again, and do considerable mischief, even if it should succeed, when applied by one either ignorant of or in-

different to it. I think it may be serviceable to append the following description of the professional way of applying the taxis; for to attempt to define or put in practice the frequently successful method adopted by patients themselves would be almost impossible, inasmuch as the proceeding they have recourse to appears peculiar, and at times complicated and ridiculous, and is followed by most serious consequences. My friend, Mr. Howell, gave me an opportunity, a short time ago, of seeing an elderly woman, who had had a right femoral hernia for many years, and on being seized, as she frequently had been on former occasions, with symptoms of strangulated bowel, applied the taxis herself during the night. It was successful, as far as referred to the reduction of the gut, but so much force had been used, that when I visited the patient, she had great prostration with marked mitigation of the symptoms of strangulation. Concluding that she would probably sink during an operation, and that the bowel had been ruptured, we decided on not interfering. In a few hours, an after-death inspection confirmed the qualified diagnosis that we had made. The following is the plan to be recommended in the use of the taxis:—Draw the body of the tumour gently down with one hand, and with the thumb and two or three fingers of the other steadily compress the neck of the hernia, with the view of causing the contained fluid to pass into the intestine above the swelling. When gurgling is heard, or when, from the sensible diminution in the size and tension of the hernia, there is reason to infer that the passage of fluid has commenced, then, at the same time, keep up gentle pressure on the body of the tumour without pressing it upwards, and the possibility is that the contents of, and then the hernia itself will be reduced. If the body of the tumour is not drawn somewhat downwards and kept so, the part of the gut (and the neck around it) just below the lower orifice of protrusion will be forced up, and doubled a little on itself against the borders of the opening, and injury to the intestine and failure in reduction be the probable consequence. If this plan be found not to succeed after one carefully-conducted trial, it will rarely be found to answer after many, and an indication is then given for the performance of an operation, as delay will but complicate the case, and further endanger the life of the patient. It may seem absurd to assert or insist on so obvious a truism, but the gloomy part of the records of surgery bears such painful testimony to the neglect of this precept, that the propriety of operating early, without persisting in the taxis, cannot be too strongly enforced and too clearly illustrated.—*Lancet, Jan.* 19, 1856, *p.* 67.

78.—CASE OF LARGE ABSCESS BETWEEN THE BLADDER AND RECTUM.

By F. C. Skey, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

Cases occur every now and then in which a catheter is easily introduced into what should seemingly be the bladder, may be carried as deeply as wished, and freely moved about, while yet no urine can be obtained. The cause of this state of things it is often very difficult to assign; and, should the patient recover, or, in case of death, an autopsy not be obtained, the explanation often remains surrounded by much mystery. The following most instructive case illustrates one mode in which such an occurrence may sometimes be accounted for:—

A man, aged about 40, was admitted on Monday, October 15, suffering from retention of urine. He was stupid, and seemed very ill, complaining, among other things, of inability to use his lower extremities. Mr. Hodgson, Mr. Skey's House-Surgeon, who throughout took great interest in the case, obtained from him a positive statement that he had never, until within the last few days, suffered from any ailments referable to the urinary apparatus. His first symptom had been a rigor two days ago, after which he found himself unable to pass his water, and accordingly sent for a surgeon. The surgeon who attended, with much difficulty and after giving him considerable pain, succeeded in passing an instrument up to its hilt, and as he (the surgeon) said, into the bladder, but obtained no urine. Some bleeding occurred, and the man having got rapidly worse sought admission into the Hospital next day.

The period which elapsed between the man's admission into St. Bartholomew's

and his death was two weeks, and during this time many attempts had been made at catheterism, and with very variable success. At one time the instrument would pass easily into the bladder, encountering no obstacle whatever, and at another it would pass up to its hilt, be freely movable, and yet not a drop of urine could be obtained, although the bladder was felt to be enormously distended. On one occasion, when one of the House-Surgeons was making an attempt, the point of the instrument, which was at the time introduced deeply, seemed suddenly to slip through something, and urine at once flowed. More or less of blood usually resulted from the use of the catheter, and often considerable quantities of grumous pus; the urine itself was clear. The man, originally much out of health, at length sank from exhaustion, and on October 30th, Mr. Hodgson made a post-mortem examination of the body.

The abdomen having been opened, and the bladder exposed, a catheter was introduced, when it was found to pass without meeting with the least impediment behind the bladder, high up, pushing before it the inverted recto-vesical pouch of the peritoneum. In this way its point, covered by the peritoneum, projected considerably above the fundus of the bladder. Having been withdrawn, and again introduced, the instrument passed as easily, and seemingly by mere chance, into the cavity of the bladder. On laying open the viscus, an opening of considerable size was seen on the floor of the prostatic urethra, just behind the veru montanum. Into this a large-sized instrument easily entered, and was then conducted into an abscess cavity, capable of holding two fists, which occupied the space between the bladder and the rectum. The abscess was collapsed, and contained only a small quantity of thick, grumous fluid. Its walls were little more than the cellular tissue of the part, and it had the appearance of having been of quite recent formation. In the median line of the posterior aspect of the bladder, about three inches behind the internal meatus of the urethra, was an opening which admitted the catheter, and was, indeed, situated at the exact spot where the point of that instrument when occupying the false channel would, on its handle being depressed, impinge against the viscus. Thus, the catheter leaving the urethra in the prostatic tract could be made, by a second false opening, to enter the base of the bladder, and the explanation of one of the successful attempts during life alluded to was readily given. The bladder itself was somewhat thickened and congested, but not to an extreme degree. There was no peritonitis. The right kidney was a mere bag of thickened tissue, lined by a villous membrane, and containing about three ounces of a thick, brown, grumous fluid. Its ureter was in many parts as large as would easily have admitted the forefinger, its coats being thick and, in parts, almost cartilaginous. Its canal was irregular from constrictions in several places, but in all parts pervious. No communication between it and the abscess cavity could be traced. The left kidney was larger than natural, and excepting the deposit of fibrinous exudation in large patches of quite recent appearance, it was not diseased. The urethra itself, as has been stated, readily admitted a No. 10 catheter, its penile portion was not laid open, but in the bulbous and membranous tracts there was not the least trace of stricture.

One thing was plain from this examination, viz. that the man must have long suffered from diseased kidney. The condition in which the right kidney and its ureter were found, was one which could not possibly have been produced in a fortnight's illness. Respecting the cause of that condition, the most probable conjecture seemed to be, that it had been caused by a renal calculus, which had excited suppuration, and slowly ulcerated its passage down the ureter. The history obtained from the patient was so imperfect, that the absence of any statement confirmatory of this opinion could not be ranked as a material objection to it. There did not seem any reason for believing that this state of the kidney had any connexion with the immediate cause of death. In explanation of the abscess, Mr. Skey stated that he had little doubt, on looking at the history of the case, but that it had been caused by the passage of an instrument between the bladder and rectum prior to the man's admission. His first retention had probably been from *spasmodic* stricture; force had been used, and the catheter made to lacerate the *floor of the* urethra. The collection of pus caused by this accident would easily *explain the* subsequent retention, from its lifting up the lower part of the viscus, *and thus* closing the meatus internus; it would also have tended to keep the

orifice of the false passage open in such a way that, on subsequent attempts, the point of a catheter could scarcely miss it.—*Med. Times and Gazette, Nov.* 10, 1855, *p.* 469.

79.—ABSCESSES IN THE PERINEUM AND NEIGHBOURHOOD OF THE ANUS.

By JAMES SYME, Esq., Professor of Clinical Surgery in the University of Edinburgh.

[The explanation of the origin of abscesses in this situation which is usually given and received, is very erroneous, so far as the rectum is concerned. They are said to be from ulceration in the mucous membrane, allowing intestinal matters to enter the cellular texture. But such an occurrence never does take place, since ulcers in this situation are always attended with an induration of the subjacent texture, and]

It is this firmness of base that renders ulcers at the rectum recognisable by touch, which from long and large experience, I may confidently assert, is sufficient for the diagnosis of all derangements in this part of the body, while speculums are not only painful and useless, but calculated to mislead. If further evidence were required to disprove the agency of ulceration in giving rise to the abscesses in question, it would be afforded by the effect of wounds penetrating the mucous membrane, which give rise to abscesses, it is true, but totally different in their nature and character from those of the ordinary purulent collections met with in this situation. The most frequent instances of such an injury are produced in a way that would not readily occur to you, viz., the administration of enemata. Many years ago, on making my daily visit to this hospital, I was told that a patient, who had been admitted with retention, was suffering from extravasation of urine. Upon examination, I found much swelling of the nates and neighbouring part of the perineum, but no difficulty in passing a full-sized catheter, through which a large quantity of healthy urine was evacuated. Having then ascertained that an injection into the rectum had been employed as a substitute for more efficient relief, I suspected the truth, and introducing my finger into the anus, at once felt an aperture on the anterior surface of the bowel, through which the fluid injected had no doubt passed, so as to simulate the appearance of urinary extravasation. In those days, the instrument employed for throwing injections into the rectum, was the old metal syringe with a straight pipe, which, when introduced behind the patient, as it generally was, could hardly fail to encounter resistance from the opposite surface, requiring force, which was sometimes employed so strenuously as to make the fluid escape in a wrong direction into the operator's face. Impressed with the danger of such a procedure, as manifested by the case just mentioned, and others that came to my knowledge from the inquiries which it suggested, I recommended that the old injecting apparatus should be abolished, and that Read's syringe should be employed in its stead. But even from this more safe and apparently harmless mode of administration, I have known perforation of the mucous membrane produced; and in order to put you still further on your guard, I may mention that a most kind and attentive practitioner asked me to see a gentleman, in whose case he felt so much interested, as to administer an injection by the apparently innocuous means of a bag and pipe, or in other words, a bladder, with an ivory tube attached to it, with the effect of perforating the bowel, and distending the hip with the usual mixture of gruel, salt, and oil. Nay, more, I could tell you of this injury being inflicted by a patient himself, who was a man of great distinction in the literary world, and held some high appointments which made him an object of interest to the public as well as to his numerous friends. He consulted me for uneasiness about the anus, which I was sorry to find proceeded from a carcinomatous tumour. Knowing such a sensitive nature as the patient's could not bear the sentence of death that would have been implied by giving the disease its true name, I called it a pile. Officious people were then indefatigable in urging the trial of doctors and drugs for the cure of what seemed an affair so simple; but the patient resisted this interference, and contented himself with using the only palliative *that afforded relief.* This was the injection of muriate of morphia, with *a little water, into the rectum.* One forenoon, about two years after I had been con-

sulted, I was sent for in great haste to see the patient. It appeared that he had got up and breakfasted as usual, but was soon afterwards found lying on the floor of his bed-room, in a state of great confusion, with the furniture in disorder. He seemed quite unconscious of external impressions, but was much excited in mind and body. Dr. Alison, who saw him with me, was equally at a loss with myself in accounting for this extraordinary state, which gradually passed into a comatose condition, and terminated fatally at the end of forty-eight hours. On dissection, immediately within the carcinomatous ring which surrounded the anus, there was a small round opening, and beyond this the cellular texture was condensed, thickened, and infiltrated with fluid. I think there can be no doubt that the patient had produced all this mischief by pressing the tube of his small india-rubber injecting bag in the wrong direction. When the fluid injected is not of such a deadly character as in the case last mentioned, it merely excites inflammation of a very violent character, attended with a corresponding degree of constitutional disturbance, the local result being very speedily a large collection of extremely fœtid fluid and air. These characters of the abscess may be supposed to depend upon the peculiar nature of the matters allowed to issue from the bowel, but are more probably connected with the sort of inflammatory action which is excited by the wound. Some months ago, I was requested by Dr. Gibson, of Dundee, to visit a gentleman there, who had, a few days before, when apparently in the enjoyment of perfect health, begun to complain of uneasiness about the rectum and perineum, with smart fever, and latterly of such difficulty in voiding urine as to require the catheter. There was no redness or external tumour, but fulness and deep-seated fluctuation between the rectum and prostate. We therefore deemed it expedient to make a very deep incision in the middle line of the perineum, which had the effect of evacuating several ounces of extremely fœtid pus. The patient was at once relieved from all his local and general disturbance, but at the end of six weeks, finding that the cavity still remained open, came to Edinburgh and placed himself under my care. I then treated the case as a fistula in ano, by division of the septum, and when the sore had contracted to little more than half an inch in length, with the discharge of only a few drops of matter during the day, dismissed the patient as cured. Much to my surprise he re-appeared a few weeks afterwards, still complaining that the sore had not entirely healed. It had then assumed the appearance of the ordinary ulcerated fissure, with indurated base and edges, and I thought that an incision through its long direction might induce a healing action, but upon carefully examining the surface, I discovered a minute orifice, through which I passed a probe, introduced a pair of slender forceps and extracted the minute body which I now show you, not larger than a small pin, but evidently a fish-bone, and recognised by the patient as belonging to a flounder of which he had partaken just before his illness. In further illustration of this subject, I may notice the case of a young man from Aberfeldy, who was recommended to my care, in the month of August last, by Dr. Gairdner, of Crieff, on account of a bone which had stuck in his throat. It appeared that about a fortnight before the time of his admission, while eating rabbit-broth, he had felt the piece of bone become fixed, and applied for assistance to a surgeon in the neighbourhood, who introduced a probang, without affording the relief desired. In addition to extreme difficulty of deglutition, he had utterly become unable to articulate, and suffered from general swelling of the neck, and discharge of fœtid matter from the throat. In these circumstances I considered it expedient to perform the operation of pharyngotomy, by making a free incision between the larynx and sterno-mastoid, cutting through the deep-seated muscles lying over the pharynx, and then opening an abscess from which I extracted this portion of rib. The patient was at once

relieved from all his sufferings, and quickly recovered, without any interruption. *Now, you will* remark that the contents of the abscess, in the two last-mentioned *cases, could* not have been distinguished from each other, or from those following in*juries of the* rectum, where the intestinal matters might be supposed to have found *egress;* and I may add, that abscesses of a similar character are not unfrequently

met with, not only in the neck and neighbourhood of the anus, where no communication can be traced with the mucous surface, but in other parts of the body entirely beyond the reach of any such influence, as in the arm, which you may recollect seeing lately. On the whole, therefore, it would appear that the irritation of the wound, independently of foreign matters being admitted, is sufficient to produce the effect in question. But, at all events, it must be admitted, that if an ulceration on the bowel were to allow the escape of its contents, the effect would be similar, and, if possible, still more serious.

Now the abscesses which, under all ordinary circumstances, occur at the verge of the anus, differ entirely from those which we have been considering. Instead of being large and diffused, they are small and circumscribed; instead of being preceded by intense inflammation, and attended with violent constitutional disturbance, they take place without either the one or the other of these conditions; instead of being rapidly they are slowly formed; and instead of dark-coloured fœtid matter, they contain merely a little of what used to be called well-conditioned pus. It is such abscesses which lay the foundation of fistula in ano. When allowed to open spontaneously, they almost invariably do so on the external surface—that is, through the skin; and if, when this has happened, or the contents have been evacuated by an incision, a finger is introduced into the rectum, while a probe is employed to explore the cavity formed by suppuration, it will be found that the mucous membrane, although to a considerable extent completely denuded, still remains entire. Sooner or later an aperture is formed by ulceration, through this detached portion of the lining membrane, and then the fistula becomes complete or open on both the external and internal surface with which it is connected.

Then, as to the urethra, it has long been taught that abscesses connected with it in general proceed from ulceration of this membrane, allowing urine to escape into the cellular texture. But whenever urine can be positively ascertained thus to issue from its proper channel, the local and constitutional effects are so violent and characteristic as to prevent the possibility of overlooking them; while the abscesses that usually precede the formation of a fistula in perineo take place slowly and insidiously so as frequently to escape observation until they discharge their contents, which in the first instance are almost always simply purulent, the urine finding its way through them only by a secondary process of ulceration in the denuded mucous lining of the urethra, which, like that of the rectum, remains entire for a time. It is true that strictures frequently give rise to abscesses of the perineum, but not by impeding the flow of urine so as to cause the extravasation, their real agency in producing this effect being through the excitement of irritation, which gradually leads to the result in question.—*Lancet, Feb.* 23, 1856, *p.* 217.

ORGANS OF URINE AND GENERATION.

80.—THE SIMPLEST OPERATION FOR UNCOMPLICATED CONGENITAL PHYMOSIS.

By Furneaux Jordan, Esq., Leamington.

[Most of our surgical authorities are of opinion, that circumcision is rarely, if ever, necessary. We may, perhaps, say the same also of those frightful slits which are sometimes seen extending to the point at which the mucous membrane is reflected from the penis. Now the non-dilatability of the congenitally phymosed prepuce is confined to the margin of the preputial orifice, and to the skin and mucous membrane in its immediate vicinity, undoubtedly principally to the mucous membrane; but the opinion that the skin is not implicated in phymosed stricture is very erroneous.]

From the above remarks, it will be inferred that any incisions, which extend further than the parts forming the margin of the prepuce, and for a short additional distance on the mucous surface, are unnecessary, and hence cruel. A single incision, however, as described, would fail to secure the retraction of the prepuce, not because *the incision is too limited*, but because a single incision cannot possibly *relieve the whole circumference* of the congenitally contracted preputial orifice;

two, however, or at most three, of the small incisions in question would afford complete relief.

The mode of operating which I have adopted, and with signal success in its results, is this:—Having first induced local anæsthesia, by applying pounded ice to the penis for two minutes, I introduce one blade of a pair of scissors (blunt-pointed, yet cutting to the end) to the distance of one-quarter of an inch, between the glans penis and the prepuce, on one side of the penis, at a point midway between the frenum posteriorly, and the mesial line anteriorly. Both layers of the prepuce being divided to the extent mentioned, a similar incision is made at a similar point on the other side of the penis. The prepuce is now retracted to the extent allowed by the incisions, which by this proceeding are brought quite external, enclosing between their lips an uncut layer of lining membrane. This is divided on each side, by introducing one blade of the scissors, to the extent of, and immediately under, the original wound. The entire prepuce may then be retracted, a piece of wet lint wrapped round the penis, and the whole supported by a proper suspensory bandage. The patient need not lie in bed. Where three incisions seem preferable they should be equi-distant from each other, the third being at the mesial point anteriorly; the two lateral incisions should be a little nearer the frenum, than when two only are made.

The incisions may of course vary a line or two, one way or the other in extent, according as the constriction is more or less aggravated.

The recapitulatory points to which I would draw attention, are:—

1. That the skin is more, and
2. That the mucous membrane is less, involved, than is generally supposed.
3. That two, or at most three, comparatively small incisions will afford complete relief.
4. That no assistant is required, and
5. No instrument save a pair of scissors.
6. Two or three small incisions cause much less irritation, and heal much more quickly than one large one.
7. That the patient need not lie in bed.—*Med. Times and Gazette, Feb.* 2, 1846, *p.* 111.

81.—ON PHYMOSIS.

By James Syme, Esq., Professor of Clinical Surgery in the University of Edinburgh.

Phymosis is either congenital or acquired. When acquired, it is either temporary or permanent, and this difference is of great importance in practice, since the means of treatment requisite for the latter are in general neither necessary nor expedient for the former condition. The temporary contraction usually depends upon the swelling connected with inflammation, or the irritation of gonorrhœal discharge, sores, or watery excrescences. It used to be the fashion to slit open the prepuce upon all such occasions, to relieve the patient from present suffering and to facilitate the treatment of his case. But as the cut surface almost always took on an unhealthy action, greatly aggravating the case, protracting recovery, and deforming the organ, it is certainly desirable to avoid, if possible, any such interference. Therefore, if you find that a preputial gonorrhœa or sores have produced the effect, instead of resorting to incision, you should make the patient inject some black wash three or four times a-day, and live quietly on abstemious diet. Under this system, the contraction, if temporary, will speedily disappear; and, if permanent, will soon be disentangled from the diseased condition of texture which would oppose the successful issue of any operation. The laying open of an inflamed prepuce was formerly held to be frequently necessary, for the prevention of sloughing from the intensity of action, but is hardly ever found necessary for this purpose where the use of mercury for the treatment of venereal complaints has been abandoned, or restricted within such narrow limits as to prevent the evils attending its profuse and indiscriminate employment. The only case of temporary phymosis requiring an operation is that of warty excrescences within the prepuce so large and numerous as to resist the effects of remedial agents, a condition fortunately so rare as to be of little consequence.

The acquisition of permanent phymosis depends upon contraction of the internal lining membrane, and this usually proceeds from the cicatrization of sores, but may also result from a gradual thickening and shrinking of the mucous membrane, independently of any breach in the continuity of its surface. This change generally takes place at an advanced period of life, and may occur without the influence of any local or general derangement that can be recognised, although there can be little doubt that irritation of one sort or another is concerned. The late distinguished surgeon of Berlin, Professor Dieffenbach, in noticing the apparently spontaneous contraction to which the orifices of mucous canals are subject, has mentioned that even the mouth is not free from this change, so as to have its capacity reduced to an extent insufficient not merely for articulation and the ordinary introduction of food, but even for supplying nourishment essential for the patient's wants. He remarked that cases of this kind occurred chiefly in persons who had taken mercury in large quantities, and it may probably be from the horror of that poison entertained in this part of the world, that we seldom meet with such distressing results of bad practice.

In operating for the remedy of permanent phymosis, whether congenital or acquired, the main objects are, of course, to allow the urine free egress, and to permit exposure of the glans; but particular circumstances may occur to render a choice of means for this purpose desirable. The simplest method, no doubt, is slitting open the prepuce, which, however, deprives the glans of a covering, and leaves a flap of skin, which, instead of diminishing, may become thickened, and so inconvenient that I have been requested to remove it long after the performance of this clumsy operation. Removal of the prepuce by circular incision prevents any such troublesome consequence, but deprives the glans of its covering, and therefore should not be employed except when the part has become morbidly thickened or elongated. Some years ago I was sent for to the country to see an old gentleman, considerably upwards of eighty, who had long suffered from phymosis, but latterly to an extent hardly either conceivable or credible. Day and night he was perpetually trying to pass urine, and by the strongest efforts could never evacuate it but by drops. I found the prepuce enormously thickened and elongated, whilst the orifice was so tightly contracted that it admitted with difficulty a common probe. Having slit open the bag thus formed, I found that it constituted a sort of subsidiary bladder, of which the lining membrane was so indurated as to resemble leather, and throughout its whole extent presented an incrustation of phosphatic deposit. As no advantage could have accrued from leaving such a mass of disordered texture, I cut it all away, with the exception of what was necessary to form a union between the skin and mucous membrane at the base of the glans. The patient was at once relieved, and lived in comfort for several years afterwards. You may be surprised at the performance of so severe an operation at such an advanced period of life, but you should recollect that liberties may be taken with the trunk of the body in old age which would not be warrantable in the extremities. In the lower limbs, especially of old people, you should, as far as possible, avoid the slightest incision, while operations, even of considerable importance, may be performed with a favourable prognosis at the most advanced age on the trunk of a healthy patient. I was once asked to operate upon an old military officer of rank, for a phymosis somewhat similar to that which has been described, and for the same reason adopted a similar course. On leaving the house, I was asked some questions as to diet by the patient's daughter, who remarked that her father was a remarkably healthy man for his time of life. Having supposed from his appearance that he might be about seventy, I inquired what was his age, to which she replied he had just entered his ninetieth year. Though somewhat startled by this information, I comforted myself with the principle just mentioned, and found it verified by the result.

When the textures concerned are in a sound state, and the object of operating is merely to remove undue constriction of the preputial orifice, the best way of proceeding is a modification of the Jewish process of circumcision. The surgical part of this ceremony, as I have witnessed it, is performed by drawing the external skin of the prepuce *through* the slit in a silver plate, and cutting it off by a *razor-shaped knife, then tearing* open the internal membrane which covers the *glans, and turning it back* so as to place its edge in contact with that of the exter-

nal integument. Instead of adopting this procedure, which deprives the glans of its proper covering, it is better to remove no more than a ring at the orifice, which may be easily done by means of catch-forceps and scissors, and then drawing back the outer skin so as to expose the inner one so far as it is not sufficiently wide to allow exposure of the glans. The scissors should then be applied laterally on both sides, so as to divide it to the same extent; after which the two flaps thus formed being turned back are connected by a few stitches to the edge of the external covering. If the prepuce, instead of being tightly contracted, is merely narrowed beyond the limit of convenience, it may be widened still more simply without removing any portion of it, by simply snipping the edge of the orifice, drawing back the prepuce so as to bring its inner lining into view, and dividing it in the same way sufficiently far for the purpose, and then introducing a single stitch through the terminal points of the two incisions; or this process may be performed laterally on both sides of the prepuce.—*Lancet*, *Jan.* 26, 1856, *p.* 106.

82.—ON THE EXTERNAL DIVISION OF STRICTURES.

The doubts and difficulties which for some time agitated the profession in considering the merits and demerits of Mr. Syme's operation for the treatment of stricture by external division, have at length to great extent vanished, and their place is occupied by certain clear and definite rules for practice which have received the assent and approbation of the majority of our most distinguished and scientific surgeons. The misunderstanding under which Mr. Syme had the misfortune to labour on his first advocating his plan for the cure of stricture, from a general disregard of the distinction he draws between the terms *impermeable* and *obliterated* stricture (a distinction recognized by Mr. Liston and Mr. Guthrie), has disappeared before explanation: so that few surgeons refuse to concur with him in stating, "As to the question of impermeability I simply maintain, that if urine passes out, instruments may always, through care and perseverance, be got in beyond the contraction. It should be observed, that the case here is quite different from that of a distended bladder requiring immediate relief. I have never maintained that in such circumstances the introduction of a catheter was always practicable." If Mr. Syme has been successful in placing himself right with those who misapprehended his views on this subject, he has been scarcely less so in gaining the support of the profession with respect to the position and utility he assigns to his operation. "There are two forms of stricture," he says, "in which mere dilatation has been found inadequate to afford relief." One of these forms is where the contracted portion of the urethra is so very irritable, that the passing of instruments into the bladder, instead of mitigating, exacerbates the symptoms. The other form is where the tendency to contract is so determined, that the effect of dilatation is forthwith counteracted by it, and almost immediately rendered useless. As an instance of this latter form of disease we may cite the case published by Mr. Syme in 1844, in the 'Edinburgh Journal of Medical Science' for October, in which he found the contractile tendency so strong, that within the 24 hours subsequent to each operation, at which large bougies had been passed with perfect ease, the stricture was still as narrow and as difficult to pass with a small instrument as ever. In such forms, either where the constitutional peculiarities of the patient are such as to preclude treatment by dilatation, or where no amount of perseverance in the application of the dilating process will procure for him any alleviation of his malady, the service that may be rendered by external incision, both in affording relief and effecting a permanent cure, is beyond question. Mr. Henry Thompson, in his 'Treatise on the Pathology and Treatment of Stricture of the Urethra,' for which the Jacksonian Prize was awarded in 1852, explains the action of the operation in the following terms:—"When a ring of contractile tissue exists, involving the structures around the urethra to a considerable depth, its *complete* division is followed by a new deposit of organized material between the *incised surfaces*, the union of which does not, and ought not, to be permitted to *take place* by simple adhesion, but granulations having arisen, by adhesion of the *granulating* surfaces. The new deposit thus formed seems to permit of extension

to a far greater degree than the old and dense matter forming the original stricture, and consequently it may, after some amount of consolidation has taken place, be sufficiently extended by dilatation to ensure a more patent condition of the urethra than before, being at least as amenable to that process as the constituents of a *stricture which is of recent origin*, and which is well known in most cases to be easily and permanently removed by dilatation. On this principle, probably, may the cure be accounted for which often follows such division when all other means have failed.

From the trial that has been given this operation (and daily the trial is becoming more general), there are ample grounds for declaring that it is extremely free from liability to fatal result. The rate of mortality seems to be but little more than three per cent., and the cases of death that have occurred after the operation may be for the most part attributed to pyohæmia; while the combined testimony of many reputable operators justifies the conclusion, that the hazard to life arising from hemorrhage and the risk of urinary infiltration, of which so much at one time was said, cannot with justice be urged against external division.

With respect to the mode of performing the operation, Mr. Syme gives the following complete and lucidly expressed directions:—"The patient should then be brought to the edge of his bed, and have his limbs supported by two assistants, one of them standing on each side. A grooved director, slightly curved, and small enough to pass readily through the stricture, is next introduced and confided to one of the assistants. The surgeon, sitting, or kneeling on one knee, now makes an incision in the middle line of the perineum, or penis, wherever the stricture is seated. It should be about an inch or an inch and a half in length, and extend through the integuments, together with the subjacent texture subjacent to the urethra. The operator then taking the handle of the director in his left, and the knife, which should be a small straight bistoury, in his right hand, feels with his forefinger guarding the blade, for the director, *and pushes the point into the groove behind, or on the bladder side of the stricture, runs the knife forwards*, so as to divide the whole of the thickened texture at the contracted part of the canal, and withdraws the director. Finally, a No. 7 or 8 silver catheter is introduced into the bladder, and retained by a suitable arrangement of tapes, with a plug to prevent trouble from the discharge of urine. The process having been thus completed —which it may be in less time than is required for reading its description—the patient has merely to remain quietly in bed for forty-eight hours, when the catheter should be withdrawn, and all restraint removed." In the above extract we have rendered emphatic the direction that the cutting be performed from behind (i. e., from the bladder side of the stricture) forwards, and not, as some of our surgeons in London persist in doing it, from the fore part backwards. This is a matter of great importance. We are far from saying that the operation cannot be achieved, in the latter manner, with success; but we do not hesitate to pronounce that it cannot be so performed with such facility and *security* as in the former plan. We know more than one instance, where, in dividing from before backwards, the surgeon's knife, just as it has severed the stricture, and lost the resistance of the indurated portion, has escaped from the groove and been plunged down into the tissues below, with imminent peril to the patient. There is, indeed, between these two methods all those differences of grace and precision, that are the usual distinctive marks between doing a thing in the right, and doing it in the wrong way.

[It may be assumed that the safest, simplest, and most widely applicable mode of treatment for stricture of the urethra, is that which consists in the employment of gradually progressing dilatation, uncomplicated by any associated lacerating, scarifying, or cauterizing. And indeed if these are employed we cannot judge of their influence. Independent of dilatation, this is the all-important means, and by careful attention to the manner of its employment, we may obtain a hint or two as to the rationale of its action, which may be useful in practice.]

The first effect of passing an instrument gently through a narrow stricture (and let me be understood as speaking in general terms, and not of exceptional cases) such an one, for example, as *will only* admit an instrument of the size of about No. 1 or 2, *without occasioning much* pain or irritation, is that an immediate increase in *the size of the stream is usually* noted by the patient on the first succeeding act of

micturition; but, in the course of a few hours afterwards, the stream is observed to be narrower than it was before the instrument was introduced; there may be even a temporary inability to micturate—in other words, an attack of retention may supervene. Subsequently, the stream gradually regains its previous size and force, and in a day or two probably exhibits a degree of enlargement as the final result of the catheterism employed. The increase, however, is rarely quite equal to that which appeared at the first act of micturition following the operation.

Now the first or immediate improvement must have been clearly due to the mechanical action of the dilating body on the stricture. No one will for an instant imagine that absorption or any allied vital action could have taken place so rapidly as to produce that effect. It was, doubtless, mechanical only. The next result observed, or that of diminution of the stream, may be regarded as the consequence of some temporary congestion, together with some spasm, possibly, in the parts, arising from the slight degree of irritation necessarily occasioned by the pressure of the foreign body introduced, a phenomena which may be designated by the term *reaction;* and this reaction will correspond, other things being equal, with the degree of pressure exerted, and with the amount of sensibility possessed by the urethra. The third and final result is that of gradual increase in the size of the stream, indicating the stage of subsiding reaction, during which congestion disappears, and at the same time the removal by absorption of some portion of the original deposit forming the stricture appears to take place, perhaps, in some degree, as a consequence of the action, whatever it may be, which is dissipating the recent congestion. The rapidity with which these actions follow one another, and the extent to which they are developed, vary greatly in different individuals. It is the existence of undue sensibility in the urethra, or its disposition to exhibit the phenomena of reaction with rapidity and intensity, which in a great measure constitutes that condition of a stricture which we commonly understand as "irritable," and the extent of which irritability correspondingly prolongs or retards the progress of cure. It is during the last stage, that of subsiding reaction, that the *vital* or *permanent* dilating effect (as distinguished from that which is merely mechanical and transient) is obtained. It is then that the true benefit to be obtained from the employment of dilatation is realized.

Granting that these observations are correct, we at once have explained some phenomena which all must have encountered who are frequently called upon to pass instruments in stricture. All such know practically that nothing is gained by shortening unduly the interval of time which must elapse between each consecutive application of the catheter; but that, on the contrary, considerable irritation is often thus induced, and the progress of the case is rather impeded than advanced; in other words, that the surgeon is making more haste than good speed—a principle which has long been insisted upon as important by the most experienced teachers of surgery.

At this point let us call to mind what is the essential nature of organic stricture. It is the presence of a deposit of organized material in and around the urethra, occasioned by inflammatory action originally set up in the mucous membrane. Bearing this in mind, it should be a cardinal principle of treatment to avoid producing any action which might in any way tend to excite renewed inflammation. A repetition of the catheterism should never be made until what has been termed the period of reaction has subsided, and the disturbing effects of it have disappeared. If we pass an instrument during that period, we increase or prolong reaction without attaining the permanent benefit of the process which would have succeeded it. It is not possible to achieve progress at that moment.

We may pass instruments day after day; but if on each occasion this is done before the period of reaction has disappeared, we shall not only fail to advance, but we shall probably intensify that condition, or convert it into one of inflammation, and thus increase an evil, which the same application, were it less frequently employed, would effectually obviate. The golden rule which must guide us in *applying* dilatation, both in regard to the extent to which it is to be carried at *the time*, and to the proper length of the interval which is to elapse between each *repetition of* it, is to apply just so much dilating power as is compatible with *a minimum* degree of irritation; to exercise just so much mechanical pressure as *can be* exerted without producing pain or uneasiness, much less any obvious signs

of inflammation; and not to reapply the instrument during the period of reaction—that is, until any excitement produced by the previous catheterism has completely subsided. The fulfilment of these indications will conduce most safely and certainly, and in the long run the most quickly, to a successful result.

From this point of view, we may at once perceive how it is that rudely or rapidly conducted dilatation, although apparently successful for a time, is certain ultimately to increase the evil which it was intended to avert. Thus is it that a patient with long standing stricture will frequently observe that his complaint has become notably more obstinate and confirmed after each succeeding course of treatment—that is to say, the contraction reappears with greater rapidity and force than it has done before. He has probably been treated by a too rapid succession of instruments, or by some irritating agent which, at the same time that it opened the passage for awhile, has induced fresh inflammation, and therefore fresh deposit in or around the existing stricture, a result which is destined with absolute certainty to assert itself at some future period more obstinately than before.

It is probably due in a great measure to a disregard of the vital actions resulting from its employment, that dilatation has been pronounced by some surgeons inadequate to afford a complete and lasting cure of any stricture, and has been by many unquestionably underestimated as a therapeutic agent. And thus it is that complicated machines in almost inexhaustible variety, have been designed for the purpose of scarifying, cutting through, and even of cutting out the urethral obstruction. The construction of these appears for the most part to be based on the idea that the urethra is a tube possessing merely mechanical properties, an obstruction of which is therefore to be treated by the application of merely mechanical powers. If, however, dilatation be employed by steps sufficiently gradual, and with special care not to excite any degree of inflammatory action, the result will generally be exceedingly satisfactory, not merely in mild cases, but in those of no ordinary severity. But if, while opening the contraction by dilatation, we at the same time irritate unnecessarily or inflame the parts acted upon, we shall at least only afford temporary relief to the complaint at the expense of its future augmentation. Employed in this way, dilatation is assuredly no cure for stricture.

It would be easy for me to demonstrate, by the recital of numerous illustrative cases, that the rationale of the action of dilatation upon stricture here offered, and the principles deduced from it, result from an extended observation of the physiological phenomena which arise in connexion with catheterism, but I forbear to occupy space in this manner. The foregoing remarks form a brief record of the facts, which the details of many cases would but present in a manner necessarily less forcible and trite. I am daily more convinced that simple dilatation, regarded in relation to the vital action with which its employment is associated, is a safer and much more powerful remedy, than it is when applied as a mere mechanical agent, irrespective of the indications which a regard to its physiological action affords; and that the cases are exceptional which are not amenable to its influence, provided it be judiciously employed and maintained for a sufficiently long period of time. The exceptional cases are, for the most part, those in which the urethral sensibility is so great, that the reaction following simple dilatation is sufficiently violent to render this mode of treatment extremely tedious and uncertain; or in which extensive and long-standing deposit around the canal has taken place, and manifests a retractility so obstinate and confirmed, that nothing short of free division of the abnormal tissue appears capable of effecting a complete cure.

[The external openings of these passages are most commonly seen about the scrotum or perineum; they comprehend three very distinct typical forms of morbid condition, each requiring a method of treatment equally distinct in order to be appropriate.]

1. The first class embraces those cases where, in connexion with stricture of the urethra, one or more fistulous passages exist, by which the urine traverses the perineum or scrotum, the surrounding parts being not much altered from their natural or healthy condition. In this category may be classed the great bulk of the cases ordinarily met with. Without entering into the pathological history of these fistulæ, they may be *briefly* regarded as the result of Nature's mode of affording *relief in cases of narrow stricture*,—in other words, as safety-valves to the dangerous *pressure which is being* exerted upon important organs behind the obstructed

point; as—while they nevertheless form fresh complications of the original complaint—most effective guarantees against those more dangerous consequences which would otherwise threaten in the form of actual retention, or as chronic inflammation, hypertrophy or perhaps dilatation of the bladder, of the ureter, or even at last, in organic changes of the kidneys themselves. Thus we may often see patients with large fistulous passages in the perineum giving exit to all their urine, enjoying extremely good health for years together. But the excessive annoyance, sometimes the pain, besides the tendency to grow worse, which, even in these exceptionably favourable cases, are necessarily present in connexion with urinary fistulæ, to say nothing of considerations arising in relation to the sexual function, demand the interference of the surgeon to bring about a natural state of things. Now with regard to the large class which we are considering, as a rule, nothing else is required than to dilate fully the urethra. The urine will flow by the natural channel, and the fistulæ will heal of themselves, if we ensure a free passage from the bladder. There need be no meddling with the fistulæ; the less they are touched the better. Their disappearance is almost certain if we can maintain the urethra in such a condition that a No. 8, 9, or 10 catheter can pass easily into the bladder. This is a proposition which may be regarded now as fully established, and I shall therefore believe it unnecessary to adduce cases illustrative of a result to which I am daily bearing witness. Those patients who form the exceptional instances to this general rule are for the most part weak in constitution, have little reparative power, or are subjects of some chronic disease in addition to stricture of the urethra. The management of such may be conveniently considered with the next class, viz.:—

2. Those cases in which the fistulæ pass through tissues which are more or less indurated and deformed by repeated deposits of inflammatory exudation; such being often connected in some part of their course with cavities, the sacs of former abscesses secreting thin or sanious pus.

It may be almost unnecessary to observe that in such instances the primary object must be to dilate adequately the stricture and to observe the effect induced. In most even of these cases this is sufficient to enable the surrounding parts slowly to improve, and, finally, the fistulous passages to take on the healing process. The dilatation, however, having been made and maintained for some time, and little or no benefit having resulted in the condition of the fistulæ, there are two courses open, one or other of which it will be desirable to adopt: the first is, to stimulate in some measure the walls of the fistulæ themselves, and so bring about adhesion of opposing surfaces; the second, to lay them open, in order to produce recent and healthy wounds, so that they may heal up soundly from the bottom. But associated with such treatment, it is of the highest importance at the same time to attend closely to the patient's general health, seeking to maintain the secretions and excretions in a natural condition. Very much is to be done by judicious care and management of his regimen and habits, by the selection of an easily-digested and nutritious diet, and by the administration of tonic medicines and cod-liver oil.

Various agents have been employed for the accomplishment of the local measures first named. One of the most useful is the concentrated tincture of cantharides, applied on a camel's-hair brush, or on a probe armed with lint, or a fine syringe. Solutions of the sulphates of zinc or copper, and of the nitrate of silver, have been introduced by means of a syringe, sometimes with apparently good result. One of the best modes we can employ is to introduce carefully, as far as it is possible, a small and flexible silver probe, coated with nitrate of silver. The probe, thus armed, must be carried quickly up the fistulous sinus, a plain probe having been introduced immediately beforehand, as a guide to the length and direction of the passage. It often happens that the external orifice of the sinus is smaller than any other part of it. It is advisable, in such a case, to apply a little caustic potash, for the purpose of enlarging it, and so facilitating the removal of the discharge.

The cure of obstinate urinary fistula has often been attempted by introducing a *catheter*, and permitting it to remain in the urethra for days together, on the *principle* of ensuring, as it has been supposed, the passage of the urine through the *instrument*, and thus preserving from irritation the fistulous passages.

Little, however, is gained by these efforts, for experience shows, that however

large the instrument may be, and however closely it may fit the urethra at the present moment, before twenty-four or thirty-six hours have elapsed it will lie loosely in the canal, and urine will pass by its side. It is not possible, in fact, to remove urine from the bladder, and at the same time to avoid contact with the urethra, for any lengthened period by this means. But further, if the attempt to maintain the urethra distended, by substituting an instrument of larger size as soon as the inlying catheter is inadequate to fill it, be persevered in, it is not unlikely to result in ulceration of some part of the urethral walls, a condition which will not aid us much to produce any healing of the fistulæ associated with it. I have seen this accident produced solely in this way, and its manifestation became too obvious in the formation of a fresh fistula anterior to the scrotum, where the urethral coverings are thin, purely from an unsuccessful attempt to empty the bladder, and prevent the urine from coming into contact with the urethra by this means. The passage of urine by the side of an instrument is due, as I have had frequent opportunities of observing, when maintaining catheters in the bladder for the treatment of narrow stricture, to an action which it is impossible to prevent in these circumstances—viz., that of capillary attraction. As soon as there is the slightest interval of space between the catheter and the walls of the urethra, urine begins to drain off, in obedience to the law referred to. This action remains in continuous exercise, and is to be distinguished altogether from that by which urine flows freely in obedience to an expulsive effort of the bladder. In this case, it is true, the fluid takes commonly the course of the catheter; but the continuous drain which takes place by the side of the instrument from the cause named, inevitably defeats our efforts to preserve the urethra free from the presence of urine. The mode of treatment, therefore, which consists in tying in a catheter, is to be regarded as generally inadequate to the cure of fistula, and it is one which has obtained countenance chiefly from the plausibility of a theory which is certainly unsupported in practice. It will generally be better to withdraw artificially all the patient's urine, by introducing a catheter three or four times a day, if it be really necessary, than to permit the instrument to remain in the bladder, and prove a source of constant irritation.

Free incisions through the fistulæ, down to their origin in the urethra, or nearly so, have been sometimes found successful in inducing a new and healthy process of granulation from the bottom of the wound, and thus in ultimately producing complete closure of the unnatural passages,—provided always, however, that there is no obstruction to the free egress of urine by the urethra, otherwise no such measure can be of any service. In some cases in which external division of the stricture on a grooved staff is indicated, this operation may be performed in such a manner as to include the fistulous opening in the incision, in which case a successful result may be generally reckoned on. Whether or no, a simple incision carried through the fistulous track may sometimes aid in ensuring the free discharge of matters hitherto more or less confined within irregular cavities, and so preventing an insuperable obstacle to reparative action in the tissues.

For considerably more than a century, it has been occasionally the practice amongst surgeons, especially in France, to make an artificial opening in the perineum upon a grooved staff, in order to give issue to the urine, for various purposes in connexion with diseased bladder and urethra. In this manner the irritating fluid being withdrawn by a short route, the parts anterior to it were relieved from its injurious influence, and were observed to acquire a healthy condition. This operation, which became familiarly known as the Boutonnière, was practised by Colot, Ledran, Chopart, Dionis, Lafaye, and J. L. Petit, in various circumstances. Much more recently the puncture of the bladder by the rectum has been practised with a similar result, more especially when an unusually narrow or irritable stricture has existed with numerous fistulæ. The principle upon which these methods of proceeding have been serviceable is that of removing all sources of irritation, but particularly the constant passing of acrid urine from both the natural and unnatural channels which had hitherto given exit to it. The precise mode in which it should be made applicable must be determined according to the individual requirements of each particular case. The instances, however, in which such measures are necessary, must be looked upon as of rare occurrence.—Lancet, Jan. 26, p. 94; Feb. 16, p. 180, and April 12, 1856, p. 399.

expanded into a sort of dilatation, which constantly retains more or less urine. When pressure is made with the fingers on the perineum, corresponding with the distended spot, a jet of urine is suddenly jerked out, and when the patient walks about, there is a continual stillicidium which keeps his clothes wet, and deprives him of all enjoyment. The collection of urine in the urethra must of course impede the escape of that from the bladder; force must therefore be exercised in order to expel it; the stream for the same reason is reduced in size, and some pain is often experienced; hence the case, so far as outward characters go, exhibits the strongest likeness to stricture. This remarkable and interesting pathological condition of the urethra would seem in general to have its origin in chronic inflammation of the lining membrane, to a limited extent, which gradually extends to the other tissues of the canal, destroying eventually its elastic and contractile properties; and, indeed, if the urethra be furnished with a *true* muscular coat, it is easy to conceive, reasoning from analogy, how inflammation of its mucous coat will lead to paralysis of the former, and consequent dilatation, as in the case of other muscular tubes, the intestinal one for example. Many persons who have never had the least tendency to stricture find that some time after passing water several drops of urine will escape when they sit down, or happen to make pressure in any way on the perineum. This arises from a deficiency of expulsive power in the urethra, and where the individual is in the habit of voiding his urine hurriedly, without waiting to expel the last drops completely, the relaxation of the canal gradually increases. If in this state the urine should become highly stimulating, as it is not unapt to do in gouty subjects from excess of lithic acid or lithate of ammonia, the drops retained in the urethra act as a constant source of irritation to the lining membrane; and if, as is so likely to be the case, there be neglect of the proper treatment, and an over-indulgence in the use of wine or ardent spirits, inflammation becomes established, and this gradually leads to the dilatation of the canal which has been described. This change is *essentially* of very slow formation, but a remarkable case, and one not easy to account for, in which it occurred comparatively with rapidity, once fell under my notice.

A man, aged 40 years, addicted to the occasional use in excess of ardent spirits, married, and having a family, was suddenly seized with painful erections at night, which were followed, in many instances, by seminal emission. This condition lasted for about a fortnight, at the end of which time he perceived a slight puriform discharge from the urethra, accompanied by pain and difficulty in making water. The discharge disappeared in a few days, but the pain and difficulty in micturition continued, and gradually increased. After the lapse of about two months a new and remarkable feature attracted the patient's attention. He observed that, for some time after each evacuation of the bladder, when he walked about, a considerable quantity of urine invariably dribbled away, so as to keep his clothes wet, and that on pressing the perineum with his fingers, in one spot, a small stream was ejected. In this state he applied for surgical relief.

There was no discharge from the urethra, nor any evidence whatsoever of gonorrhœal inflammation, and he asserted in the most positive manner that he had not contracted that disease for many years. On examining the perineum, I found that at one spot, just at the root of the scrotum, and a little to the right of the mesial line, slight pressure caused the expulsion of a considerable jet of urine; no decided bulging of the canal, however, could be detected, even when the patient made the effort to evacuate the bladder. Wishing to ascertain if there were any obstruction in the canal, I introduced an instrument, but a full-sized silver catheter passed with ease.

It is difficult to account for the phenomenon presented in this case, considering the comparative rapidity with which it was developed, and the peculiar symptoms which preceded it. There was obviously no stricture, so that the dilatation was not, primarily at least, mechanical. If there had been any laceration of the urethra during the violent erections which marked the commencement of the case, hemorrhage more or less should have been observed. Still, such was not the *case; and* then it may be asked, what was the cause of the erections? It was *evidently* not gonorrhœa. Did the cause of this peculiar affection lie in any *particular state* of the urine? At the time the patient applied to me, this secretion *was normal.* Was the origin of the case ulceration of the lining membrane, lead-

ing to the formation of a sac which held a direct communication with the canal? There was not any evidence of such a condition, which is so very rare, where no mechanical obstruction exists in the canal; there was no perceptible bulging of the urethra, no tenderness on pressure over the dilated spot, no puriform discharge, nor other sign of a urinary sac formed by ulceration of the lining membrane. It is clear that the dilatation of the urethra resulted from partial atony of its elastic and contractile tissues; but what was the cause of so comparatively sudden a change in this case cannot be satisfactorily explained.

Now as in the case of the bladder, so in the urethra; a state of increased contractility, a condition exactly the converse of the last, will give rise to all the appearance of genuine stricture. This leads naturally to the consideration of the muscularity of the urethra; but it would be foreign to our purpose to enter here at any length into a discussion on so vexed a question. Every one who has read anything of the physiology and pathology of the urethra is aware that many years ago John Hunter advanced the doctrine that it is unequivocally muscular; his opinion, however, was altogether inferential, being based on the phenomena presented by the normal and abnormal actions of the canal. Sir Everard Home warmly embraced similar views, which were shortly afterwards corroborated by the researches of the distinguished microscopist, Baüer. At this time, however, the microscope, as an optical instrument, was imperfect; hence Baüer's description of those fibres, which were set down to be muscular, was inaccurate. But within the last few years, a period marked with such rapid progress in microscopic research, demonstrative proof that the urethra is furnished with minute involuntary muscular fibres seems for the first time to have been clearly afforded; and to Kölliker and Hancock, particularly the lattter, is undoubtedly due the credit of having pointed out satisfactorily most that is now known of the exact situation and distribution of these fibres.

Unfortunately, however, for the settlement of the disputed question, as to whether the urethra be muscular or not, the arguments relied on as proving its muscularity can be explained on different suppositions; hence, many eminent authorities have denied the existence of an organic muscular tissue belonging to that canal, and have referred certain peculiar actions manifested by it variously to mere elasticity, to "vital contractility," to turgescence of the lining membrane, and to the action of the erectile tissue. There is no doubt that the phenomena presented by the urethra, as they are observed in its normal and abnormal states, are more *satisfactorily* explained on the supposition that the canal is muscular, and this view is supported by analogy; but the decision of the point can only be positively settled by appeal to the microscope; no other means can afford conclusive proof (since it is demonstrative) of the presence of muscular fibres if they exist. And now comes the question,—considering the optical power and perfection of the instruments in use at the present day; and the distinguished authorities, not alone Kölliker and Hancock, but Quekett and others who have equally devoted themselves to microscopic research, and have borne testimony to the existence of the involuntary muscular fibres alluded to—can there be any doubt or source of deception regarding them? But whether we view the doctrine that the urethra is muscular as a reality or not, is immaterial in a practical light, since it cannot be denied that the canal possesses a marked contractile property which is the cause of many remarkable phenomena it presents under certain conditions. It is this contractility of the urethra, exalted to a high pitch by peculiar states of the nervous system, as well as by the influence of weather and climate, which, most of any condition yet mentioned, assumes the character of true stricture, and is accordingly a source of great deception. Persons of a highly nervous, irritable habit, whose digestive functions have been impaired for many years, are apt uniformly to void their urine in a narrow stream, though no trace of stricture be present, nor any of the ordinary causes of the disease have ever been in operation; and on occasions when these individuals are subjected to excessive mental anxiety, there is often so much difficulty of micturition as to amount to retention of urine.

When matters go so far as this, spasm of the voluntary muscles always co-exists; but in the slighter, which are the ordinary cases, the contraction of the canal is altogether *independent of* the action of the compressores urethræ muscles, and is *referrible entirely to that* tissue which, as already observed, is, according to

microscopic demonstration, composed of minute involuntary muscular fibres. Most frequently the contraction of this tissue is uniform, but sometimes it would appear to be partial, by which a sort of slight annular constriction is formed capable even of offering a feeble resistance to a bougie of moderate size, and this may be situated in any part of the canal from the orifice to the prostate gland. It is easy to conceive how such a state may be confounded with incipient organic stricture. In either case the stream of urine is necessarily reduced in size, and some force is required in order to expel it. We see, therefore, that two exactly opposite states of the bladder and of the urine—one of augmented and one of diminished tonic power—will lead to the manifestation of the rational symptoms of stricture. In all such cases we can arrive at a negative diagnosis by introducing an instrument, when, if it pass without meeting any decided obstacle, we must conclude that stricture is absent. But, as has been intimated at the commencement of these observations, a decided obstruction to the passage of an instrument may be experienced in the urethra, and still no stricture, properly so called, exist; this is, indeed, a source of strong deception, for here we have the *sensible* sign of stricture, and when, as frequently occurs, the rational symptoms co-exist, the similitude of the case to the *real* disease is complete. Such cases demand the utmost circumspection, without which serious mischief may be done to the urethra by the use of instruments, and where great care is not taken, even the most experienced surgeon may be altogether misled. Undoubtedly the most common impediment to the introduction of an instrument, apart from stricture, is the enlargement of the lacunæ of the urethra; in this way pouches are formed, into which the point of an instrument of small size, particularly a straight one, readily enters, and its onward course is intercepted. This condition is most usually met with where stricture is present, but it is occasionally found as the result of long-continued irritation of the mucous membrane where not the slightest reduction in its calibre exists. The lacunæ, as it is well known to anatomists, lie on both the upper and lower aspects of the urethra, but particularly on the lower; the "lacuna magna," however, occupies the upper, about an inch or an inch and a half from the external orifice, and this is the pouch into which the point of a small instrument is so apt to slip.

Another impediment to the passage of an instrument along the urethra is an exaggerated condition of the natural rugæ of the mucous membrane; these frequently become enlarged and thickened in such a manner that the point of a moderate sized instrument cannot fail to hitch against them, though they may be unable to produce any sensible obstruction to the escape of the urine. Sometimes, however, the contractile fibres of the urethra are at the same time thrown into undue action; the rugæ, therefore, become closely approximated, and the folds are rendered more prominent; accordingly, the calibre of the canal is somewhat diminished, and the stream consequently reduced in proportion; the obstruction to the instrument is also increased, so that the case bears the strongest resemblance to stricture; and the deception is the greater, since it is in the most common localities of the latter disease—the bulb and membranous parts—that the rugæ chiefly abound.

But it is towards the neck of the bladder that obstacles are apt to be encountered which are really mere exaggerations of the natural state of the parts, or only trifling deviations from it. In the prostatic portion of the urethra a complete stoppage may be given to an instrument, though there be no contraction whatsoever, nor any enlargement of the gland. The prostatic and ejaculatory ducts are sometimes considerably dilated, the sinuses on each side of the verumontanum become deepened very often, and in other cases the septa intervening between the dilated mouths of the prostatic ducts form bands which cross each other in various directions, constituting a complete network; in all these conditions it is evident how the point of an instrument may hitch or become entangled. Again, the "uvula vesicæ" sometimes becomes enlarged and elevated, and projects into the internal meatus of the urethra in such a way as to offer direct opposition to the introduction of an instrument into the bladder. Very frequently a band of mucous membrane (quite *distinct from* what has been termed the "bar," at the neck of the bladder) becomes *stretched* transversely across the inner opening of the canal, which both obstructs *the entrance* of an instrument into the bladder, and interferes with the escape of *the urine from* it; this condition is often met with in persons who have never had

gonorrhœa, and usually in those who possess a relaxed and flabby state of the entire canal, such as has been already described.

The foregoing are most of the deceptive impediments experienced in exploring the urethra; and it is quite obvious how easily the surgeon may be drawn into a mistake which may prove, if not absolutely productive of serious consequences, at least of much perplexity and annoyance, not only to himself, but to the patient. In all the states of the urethra detailed the diagnosis rests on—whether it be possible to pass a full-sized instrument or not; in the case of enlarged lacunæ, of thickened rugæ, of prominent "uvula vesicæ," of the transverse fold at the internal orifice of the canal, and the network which has been described as being occasionally situated in the prostatic part, a large instrument will pass readily, while a small one necessarily hitches, or gets entangled; hence it becomes of great importance always to use a full-sized instrument in exploring the urethra, with a view to the discovery of stricture. When the impediment lies anterior to the bulb a straight instrument will pass with greatest ease; but when it lies far back in the urethra, or at the neck of the bladder, a curved one must be employed.

It too frequently occurs, when a patient applies to a surgeon, complaining of difficulty in micturating, for the latter to prejudge the case immediately, and to set it down as stricture; this leads him to explore the urethra with a small instrument, in consequence of which he is very apt to encounter some of the deceptive obstacles already enumerated; he, therefore, becomes confirmed in his previous belief, and instead of resorting to a large instrument, which would, in all probability, readily pass, and thus reveal the true nature of the case, he descends in the scale of sizes, whereby not only is his chance of succeeding diminished, but the lining membrane of the canal seldom escapes laceration. We see, then, how numerous are the sources of deception connected with the diagnosis of stricture of the urethra. In some instances the rational symptoms of the disease are exhibited *per se*, in others the sensible sign: while in many both are combined; there may be difficulty, pain, and frequency in passing water, and the existence of an obstacle to the introduction of an instrument, without stricture, in the correct sense, being present.

But, as in the case of most other diseases, the difficulty and trouble involved in the diagnosis of stricture of the urethra is not confined to the distinguishing it from what, in many instances, may be termed spurious forms of the disease; it embraces the recognition of the different species of true stricture, and the discriminating these one from the other. This leads to the classification of strictures; but since to enter here on so extensive a field would be outstripping the limits assigned to the present communication, we shall pass on to the second part of our subject, viz. the complications of stricture of the urethra. Here, again, what a wide scope is afforded for practical study.

The most common complication attendant on organic stricture is spasm, constituting the "mixed stricture" of authors; indeed, there are few cases with which more or less spasm is not occasionally associated, and there is no occurrence more annoying to the patient and perplexing to the surgeon than this, since it varies so much, on the one hand, the capability of passing urine; on the other, that of introducing an instrument. The spasm in these cases is undoubtedly of two kinds; one resulting from the action of that tissue composed of the so-called involuntary muscular fibres, the other from the contraction of the voluntary or Wilson's muscles. The latter is the principal and most important kind of spasm which complicates stricture, for it is impossible that muscular fibres, so minute as to require for their demonstration a magnifying medium of the highest power, can contract so as to produce a forcible closure of the canal; hence Sir Benjamin Brodie's statement, that spasm can alone occur at the membranous part of the urethra, though not exactly correct, according to recent discovery, is in a practical sense, perhaps, perfectly true. In almost all cases of organic stricture, spasm is apt to be excited by exposure to cold, wet, or much fatigue, or by too free indulgence in the pleasures of the table, particularly in the use of wine or spirits, and very frequently it is caused by rudeness in the introduction of instruments. In some instances, however, the proneness to spasm is so strong that the most trivial causes will induce it, and *sometimes it would appear* to occur without any assignable cause, or to be produced *entirely by mental influence*. The latter is so powerful a cause of spasm of

the compressores urethræ muscles, that there are some well-authenticated cases on record in which retention of urine has occurred from it alone, there being no organic stricture, nor any appreciable lesion of the canal. But the extreme disposition to spasm which marks some cases of stricture would appear to arise from one or two causes,—irritability of the system generally, and irritability of the urethra itself. The first condition occurs in persons of a highly nervous temperament, and particularly in those who have led a luxurious or dissipated life, and very frequently it is connected with and seems to depend on dyspepsia and derangement of the hepatic function. The second condition—local irritability—is the great source of spasm, affecting organic stricture. It consists in a high degree of sensibility—"*morbid sensibility*"—which is a state *minus* inflammation, and this involves not only the stricture itself, but the urethra in its vicinity, to a varying extent; sometimes it appears to occupy the entire canal, and even to extend to the neck of the bladder, leading to very distressing symptoms, which may simulate those of vesical calculus. This is what many writers have denominated "irritable urethra." In such cases there are always some scalding and frequency in passing water, and in general slight puriform discharge, together with a remarkable fluctuation in the ease with which micturition is accomplished, all which symptoms are greatly aggravated by taking stimulants, by sexual indulgence, and over-exercise. When the stricture is incipient or but slight, an instrument of considerable size will pass, and more readily always than a small one; but as it glides over the diseased spot, particularly if that be situated in the membranous part of the canal, smart pain is experienced. This irritable state of the urethra appears, in many instances, to be connected with irritability of the system at large, such as has been already alluded to; very often, however, it is *purely* local, and may be the result of a stricture being neglected or mismanaged, or it may be the effect of one or more attacks of gonorrhœa during the formation of a stricture. In not a few instances the disease obviously depends on gout; and even where it acknowledges another and more efficient cause, the coexistence of a gouty diathesis will not fail to aggravate the symptoms.

When the urine is rendered highly stimulating from excess of lithic acid, and the lithates—a circumstance so apt to occur in gouty subjects—all the urinary annoyance is increased fourfold; the scalding and frequency in micturition are augmented, and the spasmodic action of the muscular fibres may become so strong as to close the canal completely. Occasionally, though no doubt very rarely, where there is much spasm, and consequently more than usual slowness and difficulty in emptying the bladder, the urine becomes filtered, as it were, and deposits a slight calcareous crust of lithate of ammonia within or behind the stricture. When such an event occurs, the urinary distress assumes often a very urgent character.

A gentleman was recently under my care for stricture, coupled with irritable urethra; he possessed a well marked gouty disposition, and suffered to a great extent from dyspeptic symptoms. Whenever he attempted to depart in the slightest degree from his ordinary food or drink, his urine became loaded with lithic acid or its salts, and this never failed to add to the local annoyance from which he suffered. After he had been under treatment for the stricture for a short time, and had been considerably relieved, he began to complain, without any apparent cause, of a return of his former symptoms, which gradually increased, and amounted to such a height, that it was with great difficulty and extreme pain he could empty the bladder. I immediately suspended the use of the instrument, but anodynes, and the ordinary treatment for inflammation of the urethra, were unproductive of the slightest benefit. At length, in a paroxysm, he expelled from the urethra a small cake of lithate of ammonia, to the complete relief of all his pain and distress.

The two kinds of spasm which have been described constantly occur separately, but often they are combined, the entire canal being in a state of undue contraction. In such cases the difficulty of micturition is considerable, and the surgeon feels, almost immediately upon introducing a bougie, long before it can arrive at the stricture or membranous part of the urethra, a certain degree of resistance or slight grasping of the instrument. This state varies remarkably: one day the individual is able to void his urine in a tolerably full stream, and a bougie will pass with facility; the next day, owing, perhaps, to wet, coldness of weather, or to

some derangement of health, the urethra becomes universally contracted, and the instrument in ordinary use is grasped before it has traversed hardly one inch of the canal.

Another complication with stricture is spermatorrhœa, and this proves not only a source of mental anxiety to the patient, but leads often to extreme physical debility. Frequent nocturnal emissions may constitute a symptom of stricture under any circumstances, but most usually are associated with the irritable state of the urethra just described; the "morbid sensibility" often extending into the prostatic part of the canal, and thus proving a direct cause of irritation to the seminal ducts. It must be remembered, however, that the coexistence of spermatorrhœa with stricture does not necessarily imply the relation between them of cause and effect; the former may have been antecedent to the formation of the latter, being the result of various circumstances. In such cases the cure of the stricture is, of course, not followed by the cessation of the seminal emissions; but where the spermatorrhœa has occurred subsequently to the first symptoms of stricture, and seems to depend on it, or on "morbid sensibility" of the canal in connexion with it, obviously nothing short of the complete removal of these states can lead to a cure of the spermatorrhœa.

A third complication with organic stricture, and one which is particularly worthy of note, is pain and swelling of the prostate gland. Care must be taken not to confound this sympathetic affection with that chronic enlargement of the organ which occurs in advanced life, and which has no dependence whatsoever on stricture; the former disappears when its cause—the stricture—has been removed. Sometimes, though rarely, the sympathetic swelling of the prostate passes into acute inflammation, and may even suppurate. Sir Benjamin Brodie makes two very important practical observations on the sympathetic affection under consideration. He says:—

"1st. Where a simple chronic enlargement of the prostate gland supervenes on stricture of the urethra, the latter usually becomes less liable to spasm, and is more easily dilated, and altogether more tractable than it was before: a change in its condition which is easily explained; as the pressure of the urine against the stricture, when the patient strains in making water, is a constant source of irritation, which is, in a great measure, removed as soon as a new impediment to the flow of the urine between the stricture and the bladder is established, by the tumour of the prostate.

"2nd. But where the disease of the prostate goes beyond a mere enlargement, and suppuration has taken place in its substance, an opposite effect is produced on the stricture; the abscess itself becoming a source of irritation, rendering the stricture more sensitive, and more liable to spasm than it would have been otherwise."

There are many other morbid states found in connexion with stricture of the urethra, which may be viewed as complications, but they come more conveniently, perhaps, under the head of the "effects" of this disease, such as irritable bladder, swelling of the testis and epididymis, hydrocele, dilatation of the urethra, &c., &c.; but to enter upon the consideration of these would be to enlarge far too much the extent of the present communication. By it the principal object intended has been to invest with importance the differential diagnosis of stricture, to point out the various sources of error by which the surgeon may be misled; and surely, though more serious mistakes can be made, there is none more humiliating than to keep a patient for months under treatment for stricture, aggravating his case, when the occasional introduction of a large instrument, and a course of tonic medicines and sea-bathing, would effectually remove all the symptoms.—*Dublin Quarterly Journal*, Feb. 1856, p. 76.

85.—*On the Improved Method of Cauterizing Strictures.* By J. Z. Laurence, Esq.—In the 'Medical Times and Gazette' for September 29, 1855, I suggested a new method of cauterizing strictures of the urethra, which it might be as well to quote briefly:—"If the point of a catgut bougie be immersed in nitrate of silver in a state of fusion, ... with the addition of a small quantity of water

. . . . . by twirling round the end of the bougie in this liquid, you may get its termination coated with a fine layer of the caustic. . . . . The mode of application is this:—Pass a full-sized straight catheter, with one terminal aperture, completely *down to* the stricture; then pass the armed bougie (having previously marked off with a scratch of the nail the extent to which you wish to project it) through the catheter *into* the stricture; the whole track of this latter may then be freely and equably cauterized by gently rotating the bougie."

On the advantages this method of cauterization possesses over those hitherto in use I shall not dilate; they will be found fully explained in my original communication. Since that time I have used bougies armed by this method on several occasions, and find its application easy and efficient. Moreover, I have further found that fine catgut bougies may be equally well coated with the potassa fusa as with the nitrate of silver. The only additional precautions necessary to observe are, first to grease the end of the bougie slightly before dipping it into the fused potash, and to allow this latter to cool a little before using it. The thin layer of soap thus formed by the grease and the alkali prevents this latter acting destructively on the fibre of the bougie.

Mr. Coxeter keeps bougies armed with the nitrate of silver after this method, ready for use; those armed with caustic potash, the surgeon must prepare himself directly *before* using them, on account of the deliquescent property of the potash.

Without wishing to enter into the curative powers of caustics generally in urethral stricture, I may state that Messrs. De Morgan and Moore, of the Middlesex Hospital, have both informed me, that they have succeeded in effecting excellent cures by the potassa fusa in cases that had resisted dilatation.—*Med. Times and Gazette, February* 23, 1856, *p.* 196.

86.—ON STRICTURES OF THE URETHRA, AND THEIR TREATMENT BY INTERNAL INCISION.—MAISONNEUVE'S METHOD.

By William Acton, Esq.

[The following is the abstract of a paper on 'The Radical and Instantaneous Cure of Strictures,' which was read before the Academy of Sciences by M. Maisonneuve, who is perhaps the most distinguished teacher of surgical and operative anatomy in Europe.]

The plan consists in introducing filiform bougies (as seen in the adjoining woodcut marked *a*) into the urethra, and screwing on to the broader extremity other instruments, thus enabling the surgeon to introduce into the narrow passage (the filiform bougie acting as a leader) scarifying instruments, dilators, instruments for cauterization, and lastly, cutting instruments for the division, particularly that of Frère Come, which is the instrument M. Maisonneuve prefers for performing incision. Thus, as he states, it is an adjunct to other modes of operating, and, he asserts, one unattended with danger, having the additional advantage of not employing previous dilatation. The treatment of M. Maisonneuve has this additional peculiarity, that he thinks it inadvisable to leave any instrument in the urethra or bladder after the incision; he merely allows the urine to find its own way out of the bladder, and maintains that this is the scientific treatment in such cases. He moreover asserts that this operation is not attended with hemorrhage, only a few drops of blood being lost during the the operation.

M. Maisonneuve gives the results in his pamphlet of several cases. I shall not speak of them here, but prefer describing the operation which I myself witnessed at La Pitié. The case was that of a man brought in the night before with retention of urine. The history was obscure, and the patient a talkative fellow; but, as far as could be collected, he had long suffered from stricture, which had been treated from time to time. Fifteen days since, the more urgent symptoms began, and within fifty-six hours the aggravated symptoms from which he now suffered were complained of. There was great prostration, with sunken, sallow features, in a man who had apparently drunk freely, and had paid little attention to his sufferings. Considerable redness and puffiness of the cellular tissue around the root of the penis and scrotum existed, but I did not feel the stricture, as I was

a. Filiform bougie, little larger than a thread, armed with its articulating extremity.
b. Section of articulating extremity, to which various instruments may be screwed on.
c. Frère Come's cutting instrument, with bougie attached.

taking notes. The patient had not been able to pass urine for some considerable time.

M. Maisonneuve commenced by taking one of his small bougies, like a thread, as seen in the adjoining wood-cut marked *a;* oiling it well, and bending up the little point, he succeeded, after great tact and perseverance, in introducing it into the bladder. He then withdrew it, and passed another small bougie, to which is attached the little articulating extremity seen in woodcut, marked *b*. This entered the bladder more freely, but required great management to prevent its bending back upon itself—an occurrence which I should, *à priori*, have thought possible, if not probable; but the professor holds the part close to the glans, and insinuates rather than pushes it on. He now screws his larger instrument to this filiform bougie, and pushes it on into the urethra; so the little introductory bougie leads the way, the bougie No. 2 following until the No. 1 is coiled up in the bladder; but of course the passage, although open, does not so very readily admit this instrument; still, as he observes, when once the little leader is in the bladder he is master of the position. M. Maisonneuve now withdrew the instrument entirely, thinking he felt some hard substance, and suspecting that a piece of bougie or foreign body had been broken in the urethra (but this he subsequently found was not the case); what he took for a foreign body was but the indurated urethra, which was strictured in several places. He next introduced the filiform bougie, and attached the cutting instrument to it, this being oiled and curved as in engraving. The introduction of this large instrument was not an easy task, but still he succeeded by some manœuvring, and, in withdrawing the instrument, cut the stricture and all that offered resistance. M. Maisonneuve next introduced a stilet to see if there was any foreign body, but finding none, he attempted to pass a catheter with a short curve, but without avail; next the ordinary catheter, and with as little success, the parts being altogether changed in structure and direction. I think M. Maisonneuve might have been able to have passed a gum-elastic sound, but he did not attempt it, and I daresay he had a reason for not trying it. He merely attempted to pass the metal bougie of Beniquée, but in this he did not succeed, and ultimately an elastic bougie reached the bladder. He objects to leaving any instrument or catheter in the bladder, as being unnecessary. He ordered a bath as well as an opiate enema, and considers that the patient will be able (now the passage is made free) to empty the bladder in the bath, and everything will do well.

M. Maisonneuve subsequently showed me a case of stricture about to leave the hospital, which he had operated on ten days previously. In this instance, as in others, he does nothing more than incise, and the patient gets well in fourteen days. On the subject of relapses, he says, nothing at present can be affirmed; it is a question to be judged of hereafter; but to prove that the case was progressing favourably, the operator passed a large bougie in my presence, which proved that there existed a free passage.

I should be ill discharging my duty to those who read these papers did I conceal the fact *that M. Maisonneuve's* method of operating on stricture met with much *discussion when the subject* came last June before the Surgical Society of Paris. *The novelty of the proceeding* was called in question, as well as the correctness

of the name given to it—"the instantaneous and radical cure of stricture." The opponents of the operation remarked, that all that could be said was that it procured an instantaneous flow of urine. The author was told that he assumed that all cases of stricture were permeable; whereas many cases did not admit of the passage of the smallest instrument, and, therefore, could not be operated on in this way. M. Ricord cited a case in which severe hemorrhage followed the operation, and which it was very difficult to control. Two other cases were acknowledged to have been followed by death dependent upon purulent absorption. The operator, however, stated that these occurred when he operated in a different way from that here noticed. Objections were made to incisions in general; and to the mode of making incisions within the urethra with this particular instrument, as giving no guarantee that the cure will be permanent. Several speakers cited examples of the difficulty of preventing incisions of the meatus from healing and contracting as well as the difficulty of preventing the opening of the urethra from closing when amputation of the penis is resorted to; and great doubt was thrown on the question, whether after any of these operations a radical cure took place. It appeared from incidental observations, that at Lyons the operation devised by M. Reybard has been nearly given up, in consequence of the results having been so unfortunate; and it was further mentioned that the prize at the Academy had been given to this M. Reybard, not on account of the instrument which is objected to, but in consequence of the value set upon his observations, which have thrown light on the pathology of stricture. We gain, then, from this discussion, that dilatation is the usual and best plan for treating stricture even now; that it is generally successful in careful hands; that the cases are few in which the surgeon is obliged to resort to incision; but at the same time it is admitted that there are cases calling for operation, which however should not be decided upon without due consideration, and after the failure of other means. That if a patient can, with tolerable ease, bear a reasonable stricture, it is better to do so than be operated upon, as experience has not yet found the radical cure of stricture, notwithstanding all that has been said to the contrary; and sad experience, in London and Paris, has convinced the profession that the operation, as hitherto performed, is not free from dangers, such as hemorrhage, purulent absorptions, fistula, &c.*

I would, therefore, ask my professional brethren to examine the instrument which M. Ricord now uses, and decide if it does not present advantages which no other has hitherto possessed. I would ask operators to try it, and report on the results, It may be improved on, I admit; but I think it is the instrument that is formed on the soundest practical experience. I would, moreover, call the attention of hospital surgeons to the filiform bougie of M. Maisonneuve, together with its articulating extremity, as being a very useful instrument in many cases of retention of urine, and capable of finding its way into the bladder as a director to other instruments, when the usual catheters or bougies fail to do so. Whether they will be disposed to approve of Frère Come's cutting instrument, is another question; but as a leader and pioneer of the passage, no doubt can exist of the utility of the filiform bougie, and in a severe case I should have no hesitation in employing it; and I have little doubt that before long we shall find M. Maisonneuve making improvements on his present plan.

That some modification of incising strictures is the only feasible plan of treating some forms of the complaint, may be judged of from the following case, which has lately come under my treatment, and the success which has attended the operation may, perhaps, be considered to deserve notice, and assist others in the treatment of similar cases, which, although alluded to by authors, are not usually given in detail.

A gentleman of middle age called upon me to-day (Nov. 25th, 1855) stating that he suffered from incontinence of urine. He was a married man, and the father of several healthy children. On examining him, I found the prepuce oddly attached

* I may mention, that the perinæal section of strictures has met with little success in Paris. M. Ricord *told me* that he operated in this manner as seldom as possible; and since my return to London, I have *seen a gentleman* who came to London to consult the profession as to whether he should submit to the *operation recommended* by a distinguished surgeon; the unanimous opinion in London being that, as a *good sized bougie* could be passed, he had better be contented, and not run the risk of the operation. I *may further* mention, that similar opinions were expressed in the last edition of my Treatise, published *in 1851.*

to the glans, which depended upon phymosis having existed in early life. On asking him to pass urine in my presence, I found the stream very small and sluggish. The introduction of an instrument was very difficult: it was almost impossible to pass the smallest elastic bougie, and after proceeding an inch and a half, another obstruction presented itself.

The patient states that before marriage he had gonorrhœa, which he neglected, and his case had been very prolonged. The stream of urine has been gradually becoming diminished, and he is often called upon to micturate, although he can occasionally hold his urine eight hours. The primary obstruction appears like a membrane stretching across immediately within the meatus, and no hardness can be felt along the canal. As an operation is the only chance of relief, the patient is to call in a few days.

I placed the patient in a good light, and proposed to divide the meatus, which was very narrow: but this the patient greatly objected to, so I promised to attempt to operate on the first stricture, which I could see just within the meatus, lying like a curtain across the canal, with a very small pinhole aperture. I withdrew the knife from Ricord's instrument (vide 'The Lancet' for Jan. 12th, p. 37), and with some difficulty introduced the point against, rather than through, the curtain, as I found it presented little resistance. I, however, succeeded in dividing the stricture, and passing a bougie, discovered another stricture an inch behind the meatus. I now found that the narrow opening at the meatus was dilatable, and introducing the instrument again, I divided the stricture, and passed a tolerably-sized bougie, which, however, I did not leave in the bladder. In the evening, I again passed the bougie, to prevent cicatrization, and again at prolonged intervals, so that now the patient, from having been worried for many years in micturition, passes urine in a stream that surprises himself.

In all the cases I have yet seen, no unfavourable symptoms have occurred, and I think that the internal incision of stricture, as executed in the present day, is a valuable acquisition to science, and deserves to be employed more generally than it is, not superseding, but to be looked on as a valuable adjunct to, dilatation, now that our instruments are adapted to the cases we have to treat.

January, 1856.—I have seen and passed a bougie for this gentleman, who has had no return of the complaint. The meatus is moderately small, but very elastic, enabling me to pass a full-sized bougie; there is no impediment in the situation of either of the late strictures, and the patient expresses himself delighted at being now able to pass urine better than at any period of his life.—*Lancet, Jan.* 26, 1856, *p.* 91.

87.—*Treatment of Perineal Fistula.*—The plan which Mr. Lloyd, of St. Bartholomew's Hospital, has repeatedly pursued with success is by the injection of acetum lyttæ, in one case, which was left after lithotomy.

The fistula was extremely small, but sufficient to allow a few drops of urine to escape; the urethra was of course quite pervious, and, excepting the sinus, the perineum was in a healthy condition. The lad was about 12 years of age, and had been operated on for stone, two years ago. Repeated attempts had been made in other Hospitals, both by the use of the actual cautery, and other means, to procure the closure of the fistula, but without success. The injection of the acetum lyttæ was practised (by Mr. Jowers, Mr. Lloyd's House-Surgeon) twice a week, for several weeks, with the result of procuring perfect closure.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

88.—*On Irritable Bladder, with Excessive Pain.*—A case brought into Hospital, was that of a man, aged fifty-six (W. H——), on whom we saw Mr. Fergusson operate about the middle of July, for distressing and continued irritability of the bladder, in whom, in a word, there had been for a long time present some of the worst symptoms of stone in that viscus, without stone being present. All the ordinary remedies had been previously tried in vain, when Mr. Fergusson, as a last resource, *suggested and had* recourse to the operation of cystotomy—an operation not *at all like lithotomy, as he* stated at the time, but more in the manner of Syme's

or Allarton's operation in the mesian line of the perineum, the intention being to cut across the nervous plexuses and irritable parts at the neck of the bladder.—August 18: About a month after we saw this patient again: he expressed himself wonderfully relieved as regarded the torture he had previously suffered; the wound was then still open in the middle line of the perineum, though the urine passed through the natural passage.—Oct. 5th, we find the man is quite well. This patient was a very bad subject for any operation, his entire system having suffered from the effects of long-continued pain of a neuralgic character.—*Lancet*, *Oct.* 13, 1855, *p.* 337.

89.—CASE OF LITHOTOMY—ALLARTON'S OPERATION.

By J. Erichsen, Esq., University College Hospital.

A young man—a favourable subject for lithotrity, or for the new operation by dilatation of the prostate and incision in the median line brought recently into notice by Allarton—having presented himself at University College Hospital, Mr. Erichsen decided to give the patient the chance of this improved operative proceeding, in preference to either lithotrity or the lateral section. Amongst the more prominent advantages of Allarton's operation, it is said it results in a perfect cure in a few days, while in lithotrity cases, and too often also in common lithotomy, we need hardly remark, the cure is lengthened out to as many weeks or months; and amongst the artizan or working classes this is a matter of primary importance. This man had lithotomy performed, before, for instance, and was ill with fistula for six months after. The average rate of mortality amongst old and young patients, from the lateral section, is something like twenty per cent., if not higher; while the new method holds out the gratifying prospect of reducing this terrifying evil to one per cent. For these several reasons alone the young man wished for the new operation, which was accordingly performed last Wednesday week.

Very marked differences of surgical opinion, we may remark, exist as to the originality and value of this operation. The question of originality is one of entirely secondary moment, and may very well merge in that of the safety and value of the patient's life, and the avoidance of the "lateral section." Indeed, as any single idle objection always lessens the weight of an objection better founded, it may be that the fault found with the proceeding of the Italian surgeons, De Borsa and Manzoni—viz., that dilatation of the prostate is more dangerous than incision, may be quite as groundless as that other objection, that the operation ought not to be undertaken because it is not original, but the old Marian proceeding, *apparatus major*, and some other things long since given up. It is said of two great chemists, one of these our own Wollaston, that they made all their discoveries by resolving to examine nothing but the refuse materials of other chemists, long thrown away as useless. We have now chloroform; we have also a better knowledge of anatomy, better means of checking inflammation, &c., than Marianus, in 1520; and all the tendency of conversation in hospitals amongst the best surgeons leads to acknowledge the necessity of some surgical Wollaston, so to speak, who would review all the old operations of Raw and others, and give us something better than an operation which allows one death in three cases in old patients. This Allarton has tried to do.

We recently directed attention to a modification of Allarton's operation, as practised by Mr. Lloyd (The Lancet, vol. i., 1855, p. 512), an operation also in the case of a young man, in which Mr. Lloyd intentionally divided the sphincter, but otherwise followed Allarton's directions. That case, and some others by the same surgeon, succeeded very well, at St. Bartholomew's. The operation, as performed by Mr. Erichsen, on the 14th inst., is perhaps tedious, and to those looking on not a little irksome; yet if the cure be so rapid as to be effected in a few days, and the average rate of mortality be anything like what is represented, we may soon disregard the tediousness, and hope to dispense with large cutting gorgets, and something not unlike obstetric forceps, which we occasionally see thrust into the bladder in the Cheselden proceeding, too often, it is to be feared, lacerating the neck of the

bladder and capsule of the prostate, or, as we have recently observed, unavoidably tearing through cervix, prostate, and rectum. It is quite true and obvious that very large calculi could not be removed by the dilatation process of Allarton, yet the very apprehension of danger of the lateral operation, it is observed in the operating-theatre, increases the danger, as patients put it off till it becomes a last and fatal resource; whereas, if the rate of mortality were changed from twenty per cent. to one per cent., patients would be less fearful, and small stones would be found as the rule in our operating-theatres, and not, as now, the exceptions. The conscientious surgeon would also, as in lithotrity, teach his pupils to disregard the irksomeness of such operations in the satisfaction of saving his patient. We would advise our winter students to try the operation for themselves on the dead body. The innovation, it must not be concealed, is one of very great seriousness, but there are few things we break away from so reluctantly as old and venerable prejudices.

There was nothing unusual in the previous history of the case operated on by Mr. Erichsen on the 14th instant, except its being an instance of recurrent calculus. The points we have just lightly touched on were fairly and broadly stated to his class, with that anxiety for their improvement which always distinguishes the prelections and clinical observations of this surgeon. Experience alone can decide as to the value of the "dilatation" method. We have had experience on a large scale of the Cheselden operation; yet when it is remembered that Raw had 3000 (!) cases by a lithotomy operation not now understood, but a modification of the Marian method, and *not one death*, and then call to mind one death in three, five or seven, it must appear that there is ample room for improvement upon the operation by the "lateral section."

The directions given by Mr. Allarton are so concise that we are tempted to give them in his own words. "I introduce a grooved staff," he says, "of the usual size, and confide it to an assistant, with directions to keep it perpendicular and hooked up against the pubes; I then introduce the index finger of my left hand into the rectum, placing its extremity in contact with the staff, as it occupies the prostate, and press it firmly against the staff so as to steady it; then, with a sharp-pointed, straight-knife, with a tolerably long and rough handle, *I pierce the perineum* in the middle line, about half an inch above the anus, or at such a distance as may appear necessary to avoid dividing the fibres of the external sphincter. I carry the knife steadily and firmly on till it strikes the groove of the staff, the deep sphincter lying between the knife and the directing finger, which latter enables me to judge of the distance as the knife passes along. Having struck the groove of the staff, I move the point of the knife along the groove towards the bladder a few lines, and then withdraw it, cutting upwards, so as to leave an external incision of from three quarters of an inch to an inch and a half, according to the presumed size of the stone. The escape of urine indicates the entrance to the urethra. I then introduce a long, ball-pointed probe, or wire, through the external opening into the groove of the staff, and slide it into the bladder, to sufficient depth to insure its safe lodgment in that viscus, and withdraw the staff. I then well grease the index finger of the left hand, and pass it along the probe, with a semi-rotatory motion, through the prostate into the bladder; and when the stone is free it comes at once into contact with the finger, and, *if of moderate size, passes readily into the wound on withdrawing the finger*, the patient having power to strain upon, and thereby facilitate the extraction of the stone; this last-mentioned power being one of the great advantages of this operation." The author then goes on to observe, as remarked also by Mr. Erichsen, that, the incision being strictly in the median line, no muscles are divided, and no gaping open wound is left, as in the lateral section, and as even in this very case before, for six months. The integrity of the bladder being preserved, and no chloroform given, the patient himself helps to expel the stone.

It will be observed here that the prostate is not incised, but merely dilated, and thus the chief evil of the lateral operation is in some measure surmounted. It is worthy of remembrance, however, that Deschamps cut a nick in the prostate, and that Mr. Syme finds it very difficult to dilate what he calls the ring of the prostate even on the dead subject, *to more than* a circle of an inch in diameter, and he states that *if this annular substance* be torn the patient will die. For all stones of the size *of a large walnut, Allarton's* operation, therefore, would appear to be very satisfactory.

If the prostate be divided longitudinally for larger calculi as far into its substance as this ring extends, or better still, perhaps, in the zig-zag manner of Martineau, of Norwich, so as to leave more room for the extraction, the gland usually tears very readily, and without bad consequences. Even the *bistourie caché*, cutting this ring from within outwards for very large stones, is by many French surgeons conceived not so dangerous as too much dilatation or laceration. Sir Astley Cooper, it will be remembered, in 1819, removed a somewhat large stone from the bladder by the operation now advocated by Allarton. Deschamps and Sir Astley thought it, even in their time, not improbable we should go back to the Marian plan, so much were they dissatisfied with Cheselden's operation. It cannot be denied, however, as objected to the *apparatus major* by Mr. Coulson and some other surgeons, that with it we run the risk that the whole of the canal, from the opening of the bulb to the body of the bladder—namely, the membranous portion of the urethra and prostate and cervix—will be more or less "contused, lacerated and injured in a frightful manner;" but, we submit, only by very large calculi. It is also equally clear that in every possible form of lithotomy we must have the same dilatation of parts to extract the same sized stone; in fact, *cæteris paribus*, we must have a certain aperture through which we extract the calculus, whether in the lateral or median operation—the real question seeming to be where the opening is to be—and the surgeon will content himself with an aperture such as we have just described in Allarton's own words, with or without incising the prostate, and thus extracting the stone by slow and gentle dilatation, or the more striking and showy operation in the side of the prostate, to make room for large forceps, with chances of bursting the left side of the gland, and tearing the neck of the bladder—that ring of gland structure so well described by Liston and Syme. Sixteen patients were operated on also by Le Dran about 100 years since by the Allarton method, without a single death, the chief secret being slow and gentle dilatation.

Nov. 21st.—A week has now elapsed, and the man has not shown a single bad symptom. It seems the rectum was adherent to the membranous portion of the urethra, attached by the cicatrix of the former operation and the *old* fistula. The bladder, also, has been unusually irritable before and after the operation; so that the case was not even the most fortunate for the new operation, as was suspected when he first came under observation. The patient, however, may be considered cured.—*Lancet*, *Nov.* 24, 1855, *p.* 494.

90.—ON MR. LISTON'S METHOD OF HOLDING THE KNIFE IN LITHOTOMY.

By William Fergusson, Esq., F.R.S., Professor of Surgery in King's College, London. Read before the Royal Medical and Chirurgical Society.

The author contended that Mr. Liston cut with the knife underhand, and not overhand, as has been represented in the works of Miller, Pirrie, Erichsen, and even that of Liston himself. He (Mr. Fergusson) accounted for this mistake by supposing that Mr. Liston's artist, whilst intent upon the anatomy of the parts, and the position of the point of the knife, had considered the attitude of the hand as of minor importance. Thus, Mr. Liston had actually misrepresented his own operation; and that his pupils, whilst professing to describe it, had taken his representation as the model, and so perpetuated an error which in time might possibly lead to much misapprehension, if not to evil consequences.

[Mr. Erichsen said there did not appear to be any absolute certainty as to the exact mode in which Mr. Liston held the knife in lithotomy, but he believed that Mr. Liston changed the position of the knife according to circumstances; in the first incision he held the knife in the manner described by Mr. Fergusson, but in the second incision the knife was pushed forwards as a gorget. Mr. Ashton, who has seen Mr. Liston operate several times, said, that he always held the knife in the way mentioned by Mr. Fergusson.

The editor of the 'Lancet,' in an article on this subject, says:—]

It is remarkable, considering the thousands of living persons who have witnessed the performance of lithotomy by that great surgeon, that a mistake should be generally entertained respecting his mode of proceeding. It is clear that the

error originated with the draughtsman of Mr. Liston's diagrams, and has been perpetuated by other authors. The matter seems one of little moment at the first glance, but it is surely desirable to settle such differences of opinion, if possible, whilst there are living witnesses respecting them. It is still a matter of doubt how the great Cheselden held the knife in his operation, and that doubt can now never be removed. If the subject had been broached immediately after his decease, we might have had evidence adduced that would have determined the question. We think that the profession will be glad that Mr. Fergusson has brought the subject under notice, for probably no surgeon who ever lived has exerted so much influence on the mode of performing the operation as the late Mr. Liston. We have seen him operate for lithotomy on many occasions, and are fully impressed with the correctness of Mr. Fergusson's statement.

[In a letter Mr. Syme addressed to the editor of the 'Lancet,' on this subject, he says:—]

In the discussion which took place at the Royal Medical and Chirurgical Society of London, on the question of "How Mr. Liston held the knife in lithotomy?" it seems rather surprising that the knife itself was not produced in evidence, since the simple inspection of it would have rendered any argument unnecessary to show the absurdity of alleging that, in the deep incision, it was held "underhand," or in more intelligible language, with the operator's forefinger resting upon the back of the blade. The first time Mr. Liston performed lithotomy, on which occasion I held the staff for him, he used a common scalpel, with a piece of cord wrapped around the blade, so as to leave it exposed only to the distance of an inch from the point, *in order to protect the finger from being cut whilst resting on the edge.* He afterwards had knives made for the purpose, with a longer blade, and a blunt portion continuous with the sharp edge, sufficient to afford a secure support for the finger. The idea of running a knife into the pelvic viscera of a patient, without confining it *between* the finger and a director, would not have horrified Mr. Liston less than that of introducing forceps into the bladder before room had been afforded for the urine to escape, and thus commencing extraction before the parts were prepared for it by suitable dilatation.—*Lancet, April* 5, *pp.* 374, 378, *and April* 12, 1856, *p.* 410.

91.—*Radical Treatment of Hydrocele.*—A man, aged 31, has recently been under Mr. Lloyd's care, in St. Bartholomew's, on account of a hydrocele which had been several times tapped, and on one occasion treated by the injection of iodine, with the hope of permanent cure. The latter expedient, however, had failed, the sac having refilled. Mr. Lloyd adopted a plan, which has long been a favourite with him, of introducing a little of the red precipitate into the sac. The fluid having been drawn off by a canula, large enough to allow a director to enter it, the latter instrument, oiled, and then dipped in the powder, so as to carry a few grains adhering to it, was introduced and moved about in the cavity. The introduction was repeated two or three times; some inflammation followed, and a perfect cure ensued. The practice has the advantage over that by injection of not requiring any special apparatus.. Mr. Lloyd believes it also to be more uniformly successful.—*Med. Times and Gazette, April* 12, 1856, *p.* 361.

92.—ON PARACENTESIS OF THE SCROTUM.

By Frederick C. Skey, Esq., Surgeon to St. Bartholomew's Hospital, London.

[The subject of these remarks was a publican, about 55 years of age, who was labouring under an advanced stage of ascites and anasarca.]

The legs and the scrotum were both largely distended with fluid. Before operating, my attention was directed by Dr. Lobb to the fact, that pressure on the scrotum entirely emptied that appendage, when steadily persisted in for some short time, and *on removing* the pressure and placing the man in the upright posture, *the fluid again gravitated* into the bag, which became distended as before. *It was obvious that* the continued pressure caused by the water had broken down

or elongated the fibrous and cellular tissues about the cord, and thus opened the communication between the abdomen and the tunica vaginalis.

Under these circumstances, I determined to evacuate the serous contents of the abdomen through the scrotum, and with this view I introduced a full-sized hydrocele trocar into its lower and most pendulous part. The fluid flowed readily and continuously till some quarts had escaped, when, in the hope of expediting the process, I withdrew the lesser canula, and introduced a common ascites trocar. I gained, however, nothing by the change, for although the contents of the scrotum flowed off very rapidly, yet the full supply became exhausted, and the free current interrupted, by the disproportionate size of the inguinal canal, on the one hand, and the canula on the other. The opening in the canal appeared to be nearly equal in size to that of the smaller canula, through which the water flowed *pleno rivo*, as the old medical writers expressed it; whereas, through the larger tube, the current was small and unsteady. There existed, in fact, all the differences that may be observed between the current of urine formed by the contraction of a young and healthy bladder, and that formed by the debilitated bladder of advancing age.

Practically this case affords matter for more than a passing observation. Anasarca of the scrotum is a common attendant on ascites in the male subject. As a general rule, it commands but little attention, the interest which would otherwise attach to it being merged in the larger evil. If the question were now asked of the surgical world, how often does the relation that existed in the above case prevail in other cases? I doubt whether a very positive, or even a satisfactory reply could be obtained. The fact of the communication is curious, if it be nothing more. It is very true that the operation of paracentesis abdominis is neither a difficult nor a dangerous operation, but it will hardly be denied, that simple as it is, paracentesis of the scrotum is yet more so. Is it not, then, worthy examination how far the two collections of serum are contained in a continuous cavity?

Wherever inflammation, or even redness, has attended them, the application has generally failed; but the larger majority of these canals are not inflammatory, but chronic.

The mode of applying the escharotic is by means of a fine glass tube of length sufficient to reach the full extent of the sinus. At one end of the tube is a small glass bulb. The air is sufficiently exhausted by the hand, when warm, to draw up sufficient acid to fill the tube, and partly so the bulb. The instrument, thus armed, is passed into the sinus, and the acid discharged, either by the hand or by the aid of a lucifer match, while the tube is slowly withdrawn, pouring out its contents along the entire track. I have by such means succeeded in getting rid of several old sinuses that have given me a good deal of trouble. The glass instrument I have described is not new to this operation. I am not the discoverer, but I can report favourably of its utility.—*Lancet*, *Jan.* 1856, *p.* 88.

DISEASES OF THE EYE AND EAR.

93.—GRANULAR CONJUNCTIVA OF PALPEBRÆ.

By Dr. Robert Hamilton and Benj. Bell, Esq., Edinburgh.

[This morbid affection is often altogether overlooked, with the lamentable result of gradual impairment or loss of sight to the unfortunate sufferer. It is, therefore, a safe precaution in prolonged disease of the cornea (which may be only secondary) to evert the lid and examine carefully its inner surface, and ascertain whether any roughness keeps up the irritation.]

A practised eye can usually pronounce upon the nature of the case before the lid has been everted. The cornea is seen to have lost its lustre, and its surface is occupied by a number of distinct and tortuous vessels crossing its margin, and continuous with those of the conjunctiva oculi. In general, the vessels are most numerous on the upper half of the cornea, and occasionally they are confined to it. The skin of the superior palpebra has a rather loose and redundant appearance, and the margin of the lid no longer presents the characters of perfect health. On pulling

down and everting the lid upon a probe in the usual way, the conjunctiva lining it is seen to be greatly changed. Instead of a smooth, transparent membrane, through which the rows of meibomian glands can be distinctly seen, it is congested, thickened, and irregular, from the presence of small rounded prominences not unlike the granulations of a healthy suppurating sore. Sometimes the granular projections are peculiarly firm, and separated from each other by considerable spaces; and these seem to be the cases in which the cornea is chiefly injured.

What treatment is found to be most satisfactory in this form of disease? We have no hesitation in recommending very strongly, as a local application to the granular surface, the solutio diacetatis plumbi. Various other remedies have been successively extolled and then abandoned, as unsatisfactory; but we believe that the principal cause of disappointment has been a tendency to make the treatment too heroic and mechanical,—the reparatory powers of nature being practically disregarded. This remark seems applicable to the plan of excision, to scarification, and to the free use of sulphate of copper and other corrosive substances. And probably we may soon see consigned to the same category, the procedure recommended by a recent author, viz. of dusting the acetate of lead in fine powder over the everted lid. This gentleman tells us that it produces considerable pain at the time of its application, but afterwards gives decided relief, *apparently by mechanically filling up the interstices of the granulations, and so producing a smoother surface for the eyeball to move upon.* He adds,—"As the salt slowly dissolves, it probably exerts also an astringent effect upon the vessels supplying the enlarged follicles and papillæ, and so diminishes the size of these excrescences." The latter part of this therapeutical explanation is reasonable enough, and we do not doubt that the powdered acetate, applied in a fashion so unusual, is sometimes beneficial; but the recommendation just quoted is neither very warm nor encouraging, and therefore, most probably, like other powerful irritants, the new remedy will be speedily superseded.

The diacetate in solution may be employed with great confidence. It should be used, as a general rule, not oftener than once in two days, and the best mode of applying it to the granular surface is by means of a camel-hair brush of moderate size. On exposure to the air, carbonate of lead is gradually deposited from the solution; and if this has occurred, care must be taken to confine the brush to the supernatant fluid. The application causes little uneasiness, and the improvement is often rapid and remarkable. In illustration of this, we may mention the case of a respectable middle-aged man from Newcastle, who was an in-door patient a few months ago. Three years previously he had suffered from purulent ophthalmia, which soon became chronic, and was treated by various practitioners, both in public and private, during the intervening period. He needed a companion to guide him, the vision of his right eye being limited to a mere perception of light, while that of the left was slightly greater. Both corneæ were nebulous, and overspread with the characteristic red vessels; but the opacity in the right was more dense and central than in the left. The upper eyelids were granular. In three weeks, under the local treatment we have recommended, with due attention to his general health, he was able to read a type of ordinary size, and the improvement was still going on steadily, when circumstances of a domestic nature compelled him to return home.—*Edinb. Med. Journal. Nov.* 1855, *p.* 411.

94.—*Purulent Ophthalmia and Strumous Ophthalmia.*—Various forms of remedies are used at the Central Ophthalmic Hospital in these very difficult affections, as well as at the Moorfields Institution. In what is so well known as strumous ophthalmia, quinine and iron given internally (more especially the former) are the chief remedies to rely on. In corneitis, iron is perhaps more valuable; and where the sclerotic is chiefly involved, cinchona and alkalis, and colchicum. In purulent ophthalmia, the plan recommended by Mr. France, with the exception of mercury, has not been much improved on; the depletory plan is not so good as the careful use of nitrate of silver. The sulphate of alum is an astringent in great favour with Mr. Haynes Walton. Mr. France, it will be recollected, uses it in decoction of poppies.—*Lancet, Nov.* 3, 1855, *p.* 412.

95.—*On Ophthalmia.*—We have been very much struck with the differences of opinion, even amongst our best ophthalmic surgeons, on such familiar, if not common-place, points as the treatment of purulent ophthalmia, and that of strumous ophthalmia, the use of the ophthalmoscope, &c. At St. Thomas's Hospital, Mr. Mackmurdo uses very generally, in ophthalmial cases, a solution of one grain of nitrate of silver to an ounce of water, as a lotion. Mr. Wharton Jones and Mr. Guthrie, we have observed, on the other hand, in similar cases, find a strong ten-grain solution preferable. A favourite ointment with the former surgeon is, a drachm of levigated red precipitate of mercury to an ounce of lard, in place of the nitrate of silver ointment, which we have seen used elsewhere; at University College Hospital, the granulations on the lids are freely scarified with a sharp, round-pointed lancet, and the red precipitate ointment freely applied, and we must say, with most excellent effect. Dr. Taylor and Mr. Haynes Walton, at the Central London Ophthalmic, are more in favour of a solution of sulphate of alum, as at once more economical, more effectual, and not injuring or discolouring the eye. The change effected by nitrate of silver, especially in soldiers dismissed from the army, where it is quite a panacea in ophthalmia cases, being most marked in the production of troublesome pannus, dyeing or staining of the conjunctiva, &c., (the latter is usually lessened, if not removed, by a lotion of six or eight grains of iodide of potassium to an ounce of water.) Mr. Critchett and Mr. Bowman, at the Royal Ophthalmic, Moorfields, we find, in chronic ophthalmia or conjunctivitis, usually employ mild stimuli, solutions of acetate of lead, and sulphate of zinc, though the former may be objectionable if ulcer exists or threatens. If the symptoms are attended with much irritation, the old-fashioned opium wine is perhaps the best remedy. A solution of hydrocyanic acid, about a fluid drachm to the ounce of water, is also very serviceable. If the case have progressed, so as to give rise to troublesome mucous discharge, Mr. Critchett feeds the patient well, and uses the sulphate of copper or nitrate of silver. The excellent directions as to diet and treatment, recently given by Mr. Critchett, ('Lancet,' vol. i. 1855, p. 602,) leave us little to add on this subject. In *acute* conjunctivitis, if attended with lachrymation, the practice of Moorfields consists of leeching, with the subsequent use of iced water. Mr. Critchett believes that stimulation does harm. If, however, there be a puromucous discharge, he applies a weak solution of the nitrate of silver, with ordinary internal remedies to suit each case.—*Lancet, Nov.* 3, 1855, *p.* 410.

96.—ON EXTIRPATION OF THE EYE.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[The method of extirpating the globe described by Mr. Critchett, was first performed at the Ophthalmic Hospital, in October, 1851. It was brought before the profession about two years ago, in a case where the globe was removed from a child under the impression that there was malignant disease, but which on microscopical examination turned out to be strumous deposit. This operation was first suggested by O'Ferrall, in 1841, and again by Bonnet, in 1842. It has been frequently performed by Mr. Critchett, Mr. Bowman, Dr. Prichard of Bristol, and others, and involves some valuable practical considerations worthy the attention of the profession.]

Further experience in regard to the mode of performing this operation has induced no important alteration. I am more careful than formerly to preserve as much as possible of the conjunctival membrane. I therefore now commence by dividing it as close as possible round the margin of the cornea. I then cut through the external rectus muscle, close to the sclerotic; then the superior and inferior recti, and the obliqui; then draw the globe forwards and divide the optic nerve, turn the globe out of the orbit, and complete the operation by dividing the internal rectus. If rapidity of execution, absence of hemorrhage, freedom from constitutional or local disturbance, and a speedy cure, form the elements of a mild operation, then I do not hesitate to rank this procedure, formerly deemed so severe, amongst the simplest and safest operations of surgery. I have now operated in

this way about twenty times, and in no instance have I met with an exception to this statement.

I will proceed, in the next place, to consider the cases for which I have performed this operation, and for which it seems applicable. I may mention that up to the present time it has been limited to malignant disease of the globe, and to tumours within the orbit. I propose to bring before your notice some suggestions founded upon cases in which this limit has been exceeded.

I have recently performed this operation in cases that I would group as follows: 1st. Extensive staphyloma of the globe, with and without recent inflammatory disease. 2nd. Cases where there was reason to suspect the presence of a foreign body within the globe. 3rdly. Cases of severe synblepharon or adhesion of the globe to the eyelid, causing pain, irritation, and deformity, and for which no other operation is of any avail. 4thly. Acute inflammation and pain in the globe, with loss of vision, occasioning great distress, and preventing the use of the other eye, and showing a constant tendency to severe relapses. 5thly. Deep-seated disease of the globe, the result either of accident or of idiopathic inflammation, with disorganization of all the structures, in which the other eye exhibits symptoms of sympathetic affection, threatening gradual failure of sight. I am anxious in this paper to explain and to illustrate each of these groups, and to show my reasons for performing this operation.

1st. In some of the more severe cases of staphyloma, where the entire globe is enlarged, the sclerotic thin, and the deep-seated vessels, both in the choroid and the retina, are much dilated, it is found that the ordinary operation of opening the globe is liable to certain rather serious inconveniences. When the humours have escaped, the vessels, deprived of the support to which they have been accustomed, give way, and rather profuse and protracted hemorrhage often takes place, which first painfully distends the globe, and then escapes through the lid. This is usually followed by severe inflammation and suppuration of the globe, which continues many weeks, is attended with very severe pain, and often leaves a considerable enlargement, which is prone, from time to time, to take an inflammatory action. In such cases, I am of opinion that the removal of the globe is a far milder operation than opening it in the usual way for the operation for staphyloma. The only objection to the plan is, that no structure but conjunctiva remains upon which an artificial eye can be adapted; but the conjunctiva falls together, unites, and, still retaining its connexion with the muscles, forms a moveable curtain, upon which the artificial eye may rest, and by means of which some movement is attained. It can be very readily removed and replaced, and excites less irritation than when the globe remains.

I have operated in this way upon several persons, both children and adults, with a uniformly satisfactory result, but only two or three of these cases present any peculiar features requiring comment.

A little girl, aged seven years, was sent up to me from the neighbourhood of Stony-Stratford, with an enormous staphyloma, both of the sclerotic and cornea, in the right eye, and a dense central opacity, with partial adhesion of the iris to it, and a very small, elliptical pupil behind the corneal cicatrix. Under the influence of chloroform, I removed the right globe, and enlarged the pupil in the left. The part rapidly healed, and the little patient left the hospital in a week quite cured, and with very useful vision, and though so young, wears an artificial eye. Had I pursued the more useful plan, the result would have been far less rapid and satisfactory. I have not met with a single exception as yet, to this rapid union and recovery.

Two cases of staphyloma have recently occurred, one under the care of my friend Mr. Bowman, and one to myself, in which the staphylomatous globes were the seat of severe and protracted inflammation, which was not only in itself a source of constant distress, but prevented all use of the other eye, causing extreme weakness and intolerance of light. The relief in both cases was rapid, marked, and permanent, far more so than if the diseased globes had been merely opened.

I have now to consider those cases in which the presence of a foreign body is suspected in the globe, and is out of sight and out of reach, but produces pain, and sympathetically affects the other eye. In such cases I believe the removal of the *globe is the best proceeding.* I will briefly describe two instances of this kind that

have come under my notice. The first was a young man named Smithers, who applied to me at the Ophthalmic Hospital last March. It appeared that in June of the previous year, (1854,) when at work, the left eye was wounded by a piece of sharp steel, causing traumatic capsular cataract, with some adhesion of pupil to the capsule. As the other eye was perfectly good, nothing was done for its removal. About six weeks previous to his coming to me, and about eight months after his first accident, the right eye was struck by a piece of metal, which was supposed to have entered the globe. On examination, I found the cicatrix of a wound of the cornea and sclerotic iris and lens; there was constant and rather severe pain in the globe and over the brow, together with considerable lachrymation and congestion of vessels; and all vision, even the faintest perception of light, was lost in that eye. There was also evidence of sympathetic weakness in the other eye. For all practical purposes the poor fellow was blind. Before attempting any operation upon the left eye for the removal of the traumatic cataract, I extirpated the right globe. On laying it open, I found a piece of iron of considerable size deep within the globe, behind the iris, and partly adherent to the sclerotic, and surrounded by dense fibrine. Even if I had known its exact location, its removal would have been attended with considerable difficulty, and the result would have been less satisfactory. I then applied myself to the other eye, the management of which was attended with considerable difficulty, in consequence of the length of time that had elapsed since the accident, and the tough, elastic, and adherent condition of a large piece of opaque capsule. By means of two needles, after two efforts, I contrived to tear it through; but a narrow band still ran across the very centre of the pupil. This I, after some difficulty, succeeded in breaking by working two needles in such a way as to wind it round one by means of the other until it broke through. For a long time a fine thread floated by one loose end in the anterior chamber. A clear, round pupil was now obtained, and, by means of a suitable lens, he sees very well to do his work, and to recognize even rather minute objects.

The other case was under the care of Mr. Bowman. A fine young man, a gamekeeper, was admitted into the Ophthalmic Hospital, having been shot in the eye some months previously. There was a traumatic cataract, an adherent pupil, a discoloured iris, and other evidence of a disorganized globe; there was no perception of light. He was subject to severe attacks of inflammation and pain of an intermittent character; but the most serious feature in the case was the gradual impairment in the sight of the other eye. The cornea was rather dull; the pupil rather sluggish; and there was a gauzy indistinctness about the vision. This had appeared about a month, and was gradually increasing. Mr. Bowman removed the globe; and in the interior a shot was found lodged. The man made a rapid recovery, not only as regards the part operated upon, but the other eye, that was the cause of much anxiety, perfectly recovered its healthy condition and normal sight.

The effect of the operation in these two cases, and in all of the same type, is to free the part and the system of a constant source of irritation by the only available means.

I have performed this operation in two cases of extensive adhesion between the globe and the lids. The first was a middle-aged female, who had suffered from severe purulent ophthalmia, which had caused sloughing of the cornea, and extensive adhesion of the upper lid to the globe, tying down the upper lid so as to occasion considerable irritation and deformity; in the other eye, the pupil was closed and adherent behind a dense central leucoma. I first made an artificial pupil; and then, finding the lens was opaque, I extracted it through the artificial pupil. The patient made a rapid recovery from both operations, and obtained some useful vision, and was able to wear an artificial eye.

The other case was a girl, aged fourteen, whose eyes had been extensively burnt with lime. The lower lid was completely adherent to the globe, and the upper lid was partially adherent; the entire rows of lashes of both eyes were turned in upon the globe, causing constant severe distress, and preventing the use of the *other* eye. The operation perfectly relieved all the symptoms and deformity, and *was, I believe*, the only effectual means that offered. Extensive separation of the *globe from* the lids had been previously tried, and had quite failed.—Lancet, Nov. *17, 1855, p.* 464.

97.—ON THE EXTRACTION OF CATARACT.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[Previous to entering upon the particulars of this operation, we shall notice—first, those circumstances that are favourable to its performance; secondly, those circumstances that increase the difficulty and diminish the prospect of success; and thirdly, those circumstances that are thought entirely to contraindicate extraction.]

First, the circumstances favourable for this operation are an eye in other respects healthy, as evidenced by an active pupil, good perception of light, and a normal state of the circulation in and around the organ; a fully-formed cataract, but not of very long standing; if it have developed from the circumference towards the centre, it generally escapes more readily during the operation than if it commence from the centre, because in the former case it is less sticky and more separate from its capsule. The eye should be moderately prominent, the anterior chamber large, the muscular system rather flaccid, the nervous system tranquil, the general healing power good, the age not very advanced. Such is the state both of the eye and of the system most desirable during the performance of the operation and subsequently, and every deviation from it increases the difficulty and diminishes the chances of success. We may next inquire what these are. A very deep-set eye, with a very small anterior chamber, and a prominent brow; a congested state of the globe, as evidenced by large, tortuous returning vessels, by a sluggish pupil, by pain and fulness in and around the eye, by muscæ, and by ocular spectra; an irritable and spasmodic state of the muscular system, as indicated by deep wrinkles intersecting each other, and by shrinking and sudden closure or involuntary twitching of the lids, when the eyes are examined; an inflamed state of the eyelids; a plethoric and congested state of system, with fulness of vessels about the face and head; previous intemperate habits; inaptitude to heal; extreme old age; and a constant cough. A very feeble state of system has been mentioned as unfavourable, but my own experience has not confirmed this opinion. I have often had excellent union under these circumstances. Any strong predisposition to gout or rheumatism, or the existence of any organic disease, particularly albuminuria and diabetes, are very unfavourable to the operation, and perhaps may be ranked amongst the third division—viz., those circumstances that are thought to contraindicate the operation, and which we may now consider; a diseased state of the globe, as indicated by a fixed pupil and by the loss of all perception of light, or a tremulous iris and adhesion of the pupil to the capsule of lens.

I have dwelt rather fully on these various circumstances, because it is very important for your own comfort and credit, and also that you may be able to make a fair and honest statement to the patient or his friends, that you should be able to give a correct value to each of these circumstances, and after carefully weighing pros and cons, be able to strike a tolerably correct balance. The only conditions that seem to me to render the operation altogether unjustifiable, are a diseased globe, as evidenced by the loss of perception of light, a condition that the densest cataract cannot produce, and a very diseased state of system, particularly diabetes. As regards the other unfavourable circumstances, some may be overcome by skill on the part of the operator—such, for example, as a deep-set eye, and a small anterior chamber; and, as regards others, they militate with greater force against any other kind of operation, therefore the choice lies between blindness and the chance which extraction offers, the penalty being an operation which is said not to be painful, and a few weeks of confinement to one room; and the worst result being a permanent confirmation of a blindness which pre-existed.

Having determined as to the propriety of performing the operation, and the patient having been brought into as suitable a condition as circumstances admit, it is desirable to make certain preliminary arrangements. A large and airy bedroom should be chosen; a couch, or sofa, with a scroll end, must be so arranged, with two or three extra squabs or mattresses, that the patient, when recumbent, can rest the head upon the scroll in such a way that the operator can easily reach the eye from behind. It should be placed opposite a large window, lateral light *being excluded. Means should* also be provided for effectually darkening the room *after the operation.*

The instruments required may be arranged as follows:—Those immediately used in the performance of an ordinary operation of extraction, and those that may be required under extraordinary circumstances. The only instruments that are absolutely required are a knife and a curette, with a small silver scoop at one end and a curved sharp-pointed needle at the other. The knife that is now most commonly employed is a triangular instrument, known as Beer's knife, modified as to shape and size according to the taste and ideas of the operator. It should possess certain essentials, to which I would briefly allude. It should be so constructed as completely to fill up the opening it makes as it travels across the aqueous chamber, in order to prevent the escape of the humour. The blade should be as thin as is compatible with the requisite amount of strength; the back should be straight and thin, but not sharp. It is in the length and width of the blade that the chief difference of opinion exists amongst practical men; some preferring a sharp and broad-bladed knife, and others a long and narrow one, and various modifications between the two extremes. The fact is, that each of these shapes possesses certain advantages over the other, and certain corresponding drawbacks, and it is just in proportion to the estimate that each operator forms of their favourable and unfavourable qualities, that he makes his claim.

As these points involve considerations of great practical interest to those who aim at operative excellence, I propose, even at the risk of seeming tedious and over minute in details, to dwell upon them. In employing a short and broad knife, you have the advantage of completing a considerable portion of your corneal section by the time the point has traversed the anterior chamber, and emerged through the opposite side of the cornea, so that the operation may be completed without carrying the knife much beyond this point; but it has the inconvenience of cutting its way with some force and difficulty, and of presenting a surface of the edge to a surface of the cornea so soon as the aqueous humour has escaped in such a manner that the sawing power of the one cannot be brought to bear upon the other, the result of which is a "fix" or "lock," which mere thrusting force will not overcome until the relative bearing of the two is altered. The non-appreciation of this occurrence has given rise to the idea and to the statement that the cornea is sometimes tough, and requires considerable force to cut it through; whereas, this is never the case so long as the sawing edge of the knife is brought properly to bear upon it. The short broad knife seems also to have the disadvantage of not retaining the aqueous humour so completely and so readily as a long narrow blade; neither does it give the operator so much command over the eye. The narrow knife has the disadvantage that it must not only be carried across the anterior chamber, and through the corresponding point of the cornea, but it must be thrust on for some considerable distance, in doing which the inner caruncle, and even the side of the nose, is liable to be wounded. This may be avoided with care, and after a little practice, and even if it occurs does not in any way prevent or impede any essential step of the operation. The advantages of this form of knife are that it retains the aqueous humour well, not only while the anterior chamber is traversed, but for some way after it has emerged; that it travels along with great ease, always presenting a cutting edge to the cornea, and never becoming wedged against a flat surface of the cornea, like the other shaped knife; that it may be passed slowly along, so as to insure great accuracy and certainty; and that it makes the flap very semicircular and even.

After having for some years tried various shapes, I am, from these various considerations, disposed to prefer the long narrow knife. I have the knife made with a small square handle, as I find that it enables me to keep it more perfectly even and steady between my fingers; but this is altogether a matter for individual experience and choice. In addition to the knife and curette, it is necessary, in the event of any untoward circumstance, to be provided with a small, narrow, blunt-pointed instrument, with a cutting edge, for the purpose of enlarging the section when it has been made at first too small; and a little sharp hook to extricate the cataract, if it does not escape in the usual way; or if the vitreous humour is fluid, or the hyaloid membrane has been ruptured. Lastly, a small instrument, like an ordinary spatula, but about the size of a broad cataract needle, which was first *suggested* by my friend and colleague, Mr. Dixon, is very convenient for replacing *the iris within* the section after the cataract has escaped.

Having then provided yourself with suitable instruments, the next point to consider is the position of the patient during the operation. In suggesting at an earlier part of this lecture that a suitable couch be procured, I have implied that I prefer the recumbent posture; but so many eminent operators, particularly on the continent, place their patients in a sitting attitude, that I think it may be expected that the motives that have induced my colleagues and myself to continue a plan which has always been pursued at the Ophthalmic Hospital since its foundation should be explained. It gives the operator more control, and ensures greater steadiness on the part of the patient; it enables the operator to fix the upper eyelid himself, instead of depending upon an assistant for this, as must always be the case in the sitting posture; and in the event of the vitreous humour escaping during the operation, less of this fluid is likely to be lost. Every preliminary being arranged, and the patient having been placed upon the couch, with the head rather low and resting upon the scroll, the operator either stands or sits upon a stool, as may best suit his convenience, behind the patient. I usually prefer standing to sitting. The operating-couch should be placed opposite a window, the lower part of which is darkened, so that the light may fall slanting from above on the patient's face. If the right eye be to be operated upon, the knife must be held in the right hand. The upper eyelid must be raised by catching the edge of the upper tarsal cartilage with the forefinger of the left hand, and pressing it upwards against the margin of the orbit, at the same time an assistant slightly depresses the lower lid towards the malar bone. In this way the lids may be effectually kept open and the globe exposed without making the least pressure in the latter, which is a most essential point to attend to. The operator holds his knife as he would a pen, between the thumb and the fore and middle fingers, and rests the ring and little fingers on the temple; he then pauses a little, watches for a favourable position of the eye, and when the patient is quiet and manageable directs him how to place the eye; he takes the bearing of the eye with respect to the position and place of his knife, so as to adjust it parallel to the surface of the iris; he then pierces the cornea at its outer part, about half a line from its junction with the sclerotic, enters the anterior chamber, and then steadily, quietly, evenly, and slowly passes the knife across the anterior chamber, taking care to keep the back of the knife gently pressed against the cornea, so as to fill up the aperture he is making as he travels along. If he will attend to this point there is no risk of the aqueous humour escaping; there is time for regulating the position of the counter puncture, and when this is made all danger from the falling forward of the iris is usually at an end. If he moves the knife along timidly and rapidly, and with the impression on his mind that the aqueous humour is likely to escape, if he does not make haste and get rapidly across, the very thing he dreads is almost sure to occur; but if he moves along with steady self-reliance, by attending to the rules I have laid down, he can keep the aqueous humour as long as it is necessary to do so, and he will succeed. After the counter-puncture is made, the knife must still be carried forwards until the section is nearly completed.

When there is much spasm it is well to pause for some little time before you quite finish the section; you have now perfect control, and may wait as long as you please. If this precaution be not attended to, the lens, with a considerable quantity of vitreous humour, may be forced out, and seriously interfere with the success of the case; it is therefore very desirable to divide the last part of the cornea very gradually and gently, and this may generally be done most satisfactorily by slowly withdrawing the knife. This will not answer while much of the cornea remains to be cut, partly because the inner part of the section will be straight and angular at its extremities instead of forming a portion of a segment of a circle, and partly because a small bridle may be left uncut, which would necessitate the reintroduction of the knife. At the moment of completing the section, great care must be taken that no pressure is exerted on the globe, and even the tension to which the lids are subjected in fixing them widely open, at the commencement of the operation, may be relaxed so as to allow of partial closure, and prevent spasm. If the eye turn in at the moment that the knife is traversing, the blade must be inclined with the eye, so as to preserve a plane parallel to the iris: if this is not done the point will emerge too near the centre of the cornea, and consequently the section will be too small, and will require enlarging afterwards, and part of

the cicatrix will be opposite to the pupil and will interfere with vision. Directly the counter puncture is made, the knife can be used as a lever to bring the eye back into a convenient position for completing the section, which would be nearly impossible while it is rolled into the inner canthus. It is also important not to encroach upon the junction of the sclerotic in any part of the section; 1st, because the tissue is here much tougher and more resistant to the knife; 2ndly, because it is more sensitive to pain; 3rdly, because prolapse of the iris is more prone to occur; and 4thly, because the tissue does not unite so readily as pure cornea. Again, it is equally important that the section should not traverse too near the centre of the cornea, because it then forms more of a mere slit than a flap, and does not allow sufficient space for the escape of the lens, and leaves a cicatrix just at the axis of vision. Of the two extremes, this is the worst, but *le juste milieu* is the thing to aim at. A perfect section should form a semicircle, and about half a line of transparent cornea should be left attached to the sclerotic; this allows space for the escape of any cataract however hard and bulky. If the aqueous humour escape very soon after the knife has entered the cornea, or even when it is about half across, the iris falls forwards and envelopes the blade, and must inevitably be cut through extensively if the operation be persevered in; the globe is thereby rendered flaccid, which still further increases the difficulty. It is better, under these circumstances, to withdraw the knife, allow the small wound that has been made to heal, and perform the operation at a subsequent period. If the knife has very nearly traversed the chamber at the time that the aqueous humous escapes, a small portion of iris will fall against the edge of the knife; it is often possible, by a little manœuvring, to complete the operation without removing it; as the knife is passing along a finger must be gently pressed on the blade and on that portion of iris that lies over it, and the back of the knife must at the same time be pressed against the lower part of the section. If it be then slowly and carefully carried on, it will generally be found to have glided over the iris without wounding it; if this cannot be accomplished, I think it is better to finish the section, even though the iris be wounded. Such cases often result in very useful sight, though of course the pupil is large, irregular, and distorted. It is very undesirable to withdraw the knife, and leave the operation incomplete, if it can possibly be avoided. The patient is naturally much discouraged, and the eye is very likely to be unfitted by the adhesions that form for any renewal of the attempt at extraction. It is important that any portion of iris that may have been wounded should be entirely freed and removed from the eye; or, if a second pupil is formed, that it should be made to communicate with the natural pupil. In the event, however, of the pupil that has been accidentally made being very small, I think it is better to leave it, as it is very likely to close during the healing process; and if it should not, and any inconvenience is felt, it is very easy at a subsequent period to convert the two pupils into one. If the section in the cornea be too small to allow of the escape of the cataract, which may be occasioned as I have already suggested, by making the counter puncture too soon—that is to say, not sufficiently near to the junction of the cornea with the sclerotic—or by carrying the section too much across the centre of the cornea, so as to form a slit rather than a flap, it must be enlarged, by introducing the small knife that I have described within the section, and then, by a series of little sawing movements, enlarging the opening. This is always attended with some difficulty, partly because the eye becomes very irritable and restless after it has once been wounded, and partly because the globe is flaccid, and offers but little resistance to the edge of the knife. Nevertheless it is the only alternative, and must be attempted rather than make any effort by pressure on the globe to force the cataract through an aperture too small to allow of its ready escape; because if this be done, the hyaloid membrane is liable to give way, and the vitreous humour to escape, causing the cataract to sink down to the bottom of the eye. In such an event, it is impossible afterwards to get the cataract out; it cannot usually be found; and, even if hooked up again, it cannot be made to escape through the small section. Such an unfortunate series of casualties almost inevitably results in a total loss of the eye. I never remember a recovery to have taken place under such circumstances.

When the section is nearly completed, the lids may be partly released, so as to take off all spasmodic effort and possible pressure just at the moment the last little

bridle of corneal tissue is cut through. The patient should then be directed to look downwards, and the lids allowed gently to close. A short interval of repose should be permitted, for the subsidence of spasm and irritation, and in order to reassure the patient as to the painless character of the subsequent steps of the operation. I have described the mode of making the upper section only because it is the one invariably adopted by myself and my colleagues at the Ophthalmic Hospital. It appears to me to possess so many advantages over the lower section, that it is hardly necessary to institute a comparison between them.

The next stage consists in opening the capsule, in order to allow of the ready escape of the lens. This requires considerable care and delicacy, and in an irritable eye is by no means easy. The upper lid must again be gently raised, and the curette insinuated between the flap of the cornea and the iris, with its convexity downwards, so as to avoid the entanglement of the point with either. It must then be made to glide on over the surface of the iris, so as not, if possible, to touch it, as it is by far the most sensitive part, and it is almost sure to cause a sudden, involuntary movement of the eye, which defeats your object for the time. When it has reached the pupil, the point must be turned towards the capsule, and then lightly moved from side to side, so as freely and effectually to open it, without making pressure on the lens, which might displace it, and disturb the vitreous humour, and rupture the delicate hyaloid membrane. You may generally know that the capsule is sufficiently torn through by observing a slight forward movement of the cataract. The curette must then be cautiously extricated, with its convexity upwards towards the operator, being the reverse position to that required in entering between the corneal flap and the iris.

The third stage of the operation now commences. The upper lid must again be raised, and gentle pressure must be made upon the lower part of the globe with the spoon of the curette, in such a way as to act as directly as possible upon the lens, so as to coax it out, as it were, without disturbing or pressing upon the other parts of the eye. Sometimes this is sufficient; sometimes a little counter-pressure with the finger, on the upper part of the globe, is required. Occasionally the cataract escapes spontaneously, from the mere elasticity of the globe and the action of the muscles. As long as the escape is taking place, however slowly, it is better not to interfere. Cases not unfrequently occur, in which the cataract shows an indisposition to move from its position, even when the eye is subjected to as much pressure as prudence permits. Matters are now in a critical condition, and it requires much skill and quickness to divine the cause. It may arise from the smallness of the section, from the capsule not being sufficiently opened, from the cataract being either old and dry, or sticky, and from the vitreous humour being aqueous. It is a curious fact, that the cataract will not present, or make the least effort to escape through an impassable opening; this must be enlarged before any further effort is made. If the capsule is at fault, it must be again carefully opened. The dry and sticky cataracts may be cautiously aided in their transit by light touches of the curette. If the vitreous humour is thin and fluid, and escapes so soon as light pressure is made, it must be discontinued, and the little sharp hook must be carefully insinuated behind the cataract, and it must be brought out with as little injury to the eye as possible. It not unfrequently happens, that as the cataract is escaping through the section, some portion of the circumference, if soft or friable, and readily detached, scrapes off, and remains in the pupil or anterior chamber, or between the flaps of the wound. It is very desirable to remove any portion that may rest on the iris or in the wound, as it would interfere with the satisfactory progress of the case, acting like a foreign body (which is one of the worst enemies the eye has to dread), producing iritis, or getting into the wound, and impeding or preventing union. Where the soft matter remains in the pupil, many think it is better to leave it there to be absorbed, for fear of again disturbing the eye, and causing the vitreous humour to escape. My own feeling is strongly in favour of removing it, if possible, with the spoon of the curette. If we could be sure that it would remain in the pupil until absorbed, it would be unimportant; but experience has convinced me that it is very liable to be washed by the freshly-secreted aqueous humour into the anterior chamber, or on to the surface of the iris, or even between *the flap of the cornea*, thus exciting irritation, or preventing union of the *divided parts, or preventing* the proper nutrition of the cornea.

After the cataract has escaped the eye must again be allowed a period of repose. The patient may then be directed to open his eye, which enables the operator to ascertain if the parts have assumed a favourable condition. If the pupil is not circular, and the iris is protruding through the section, it must be replaced by means of the little spatula I have described; sometimes mere exposure to light will effect this object by causing the pupil to contract. When the pupil is small and round and clear, and the section lies well, and the patient is tolerably tranquil, it is better to allow him to see some object, such as a hand, before finally closing the eyes, as it induces confidence, and quiets the mind. It occasionally happens that the section remains patent and the iris prolapsed in spite of every effort; this may arise either from spasm of the muscles or from extreme congestion of the deep-seated vessels of the eyeball, or from a combination of both. When this is the case, it is better to close the eye, apply cold, and trust to the effect of time and rest for the gradual subsidence of the spasm, the retraction of the iris, and the coaptation of the section. Even where this does not entirely take place, some useful sight may ultimately occur, with a distorted and displaced pupil. As I have before hinted, if the section is completed too rapidly, or if there is considerable spasm of the muscles, or if the vitreous humour has lost its natural consistence, and has become thin and aqueous, under any of these circumstances, or under a combination of two or more of them, a sudden escape of the lens may take place, and with it a certain portion of the vitreous humour. This may for a time prevent the adjustment of the flap of the cornea, or it may be so extensive that the globe may become flaccid, and fall together like an empty bag, and the cornea may be concave. This is an unfavourable state of things; the pupil is always large, fixed, and drawn upwards, and the vision is usually less perfect and less lasting than in cases where no vitreous humour escapes. Where the loss is very considerable, the power of re-secretion sometimes fails, and destructive inflammation of the globe follows. It is extremely difficult to define the absolute quantity that involves loss of sight; it probably varies in different individuals. I have had cases where everything looked most unpromising, and where the eye seemed quite collapsed on account of the extensive loss of vitreous humour, rapidly refill and turn out favourably, while more hopeful cases have been lost.

The most serious consequence of the extraction of a cataract, as an immediate result, is the giving way of some large vessel at the posterior part of the eye. This may take place at the time of the operation, or at an interval of some hours. The patient usually complains of sudden, rather severe, and deep-seated pain, and the vitreous humour slowly and continuously escapes until followed by arterial blood, which first distends the globe, and then flows out between the lids, and often continues to flow on for a day or two. It is usually owing to excessive congestion of the deep-seated vessels, together with spasm of the muscles, and probably some old and unsuspected disease of the globe. This occurrence is fortunately rare. We usually have one such case at our ophthalmic hospital every season. The immediate and the remote effects of such an accident are alike distressing to the patient and to the operator; a prolonged and even alarming hemorrhage is followed by severe suppuration of the globe, and of course by total loss of sight.—*Lancet, Dec.* 15, 1855, *p.* 569.

98.—*Chloride of Zinc Collyrium.*—At the Royal Ophthalmic Hospital (Moorfields) Mr. CRITCHETT has some time been employing a lotion of chloride of zinc as an eye-water in cases of vascular and thickened conjunctiva. He holds that the disease is a sort of "gleet of the eye," and analogous in nature to gleet of the urethra. The strength used is one grain to the ounce. It has not yet found its way into the Hospital Pharmacopœia.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

99.—A NEW FORM OF ARTIFICIAL MEMBRANA TYMPANI.

By THOMAS WESTROPP, Esq., Bristol.

[There are two varieties of artificial tympana known and used by the profession: the first is what is called the moist cotton plan of Mr. Yearsley; and the other is

the vulcanized india-rubber contrivance of Mr. Toynbee. There are certain objections to both of these, which Mr. Westropp proposes to remedy. He says:]

In order to be easily understood, I shall give but a brief description of my plan, leaving it for time, the profession, and especially the aurists, who have extended opportunities of testing it, to determine the relative merit of each. I do not want to decry former appliances. I believe there will be cases found suited to each, and that the simple remedy, the original moist cotton of Mr. Yearsley, will be borne by some ears when nothing else will, at least for a time. In the first place, my contrivance is a tube, very thin in texture, very pliant and durable in material; it is thus made:—Having accurately inspected the meatus into which we desire to insert an artificial membrane, we must make a model of it in some hard timber. This should be as perfect almost as a cast, though not too tight; its end should be flat, cut obliquely, and the circular edge rounded off. This cast or model, previously oiled, should be repeatedly dipped into a solution of gutta percha, in chloroform, till a film of sufficient thickness is formed, to peel off in one unbroken piece. A slit with a knife may be made longitudinally, without detriment, to aid its coming freely off, but the cut should not go within a quarter of an inch of the flat end; it sometimes is necessary to touch with some of the gutta percha solution any inequalities of the membrane. This tube, if the timber model has been properly made, will be found to fit the meatus comfortably, and when oiled and coated with cerumen, to exclude the external air from the cavitas tympani; the tube should not be allowed to protrude, but should be cut obliquely, so as to lie entirely within the meatus; it easily adapts itself to the parts, the flat circular membranous end lies at the proper angle in the site of the lost membrane or its remains; when it becomes advisable to clean its surface, it can easily be taken out by the patient with a small pair of tweezers, washed in cold water, oiled, and re-inserted. If found to fit, two or three should be made and given to the patient, who should be taught their use. If there be a discharge from any part, from the ear, polypi, obstructed Eustachian tubes, a nervous impairment, or any other aural affection, it should be appropriately treated. For functional nervous derangements of the ear, I am in the habit of using locally strychnia, dissolved either in water or glycerine, with the help of a little acid and spirit; I am inclined to think it often does good. Why should it not stimulate the aural nerves as well as it does those of the eye when dropped on the conjunctiva in functional amaurosis? The more we bring to bear on aural disease our more advanced knowledge of eye complaints, and follow out the analogy, the more we shall advance and increase our success. In conclusion, I beg to remark, that though my contrivance is simple, yet I do not expect every person who tries to make or adjust it will at first succeed; it requires much practice and patience; failures will be as often met with as success in the attempt to construct a perfect membrane, as it is a difficult matter to hit on the proper thickness of the tube; the solution of gutta percha should be rather thin, so as not to coat the timber model too thickly, and to allow of its spreading evenly over its surface; it should be kept in a very small bottle, to avoid excessive waste of chloroform; each coat or film should be allowed to dry perfectly; six or eight coats will be required to complete the necessary thickness, and this takes two or three days to accomplish. The tube should not be peeled off the model when too thin, else it will tear; or should not be made too thick, else it will be hard and tough, and irritate the ear; it should be about as thick as very fine gutta percha, or oil silk; it is then pliable, soft to the ear, and will easily vibrate when adjusted. As might be expected, a great deal depends on the nicety of the model; the timber requires much carving, scraping, filing, and polishing; also the anatomy of each meatus must be strictly attended to. Without all these precautions, I do not promise that any material benefit (and even at best, artificial aids of any description are only very imperfect substitutes for the original) will be derived. I hope I shall not be understood to say that I have discovered any specific cure for deafness; and I equally hope that clumsy attempts of unskilled persons may not be reflected on a really useful invention.

A point which should always be borne in mind is, that a foreign body of any kind should not be allowed to cause or to keep up otorrhœa. I do not say that an artificial membrane may not be worn when only a slight discharge exists, but it is better to get the ear into a healthy condition first; and even when everything is

in as favourable a condition as could be expected, it should be remembered that Nature does not become used to adventitious aid all at once, and that all extraneous matters, whether wooden legs, ivory teeth, or glass eyes, do not feel comfortable to the wearers when first adopted. It is not my intention to detail cases at present. I would merely remark that I have tried my artificial membrane, under two very opposite circumstances, the one as unfavourable a case as it could be tried on, the deafness and disorganization being extreme; the other being the reverse, and a favourable subject to experiment on, part of the membrana tympani remaining, with, I believe, the ossicula; and neither the deafness nor condition of ear being very bad. In the former the artificial membrane, contrary to my expectation, increased in a slight though decided degree the power of hearing; in the latter considerable benefit is now being derived from it. I generally first try the moist cotton plan, to see whether the hearing is susceptible of improvement at all; if so, then my artificial membrane is almost sure to answer even better, and even though the cotton do not afford the usual result, the thin gutta percha membrane already described being worn for a few days, the patient may, as in a case under my care, announce unexpectedly that he hears better. The entire subject is still *sub judice*, and I hope it will be investigated without the prejudice and malevolence which too often disgrace medical criticisms.—*Med. Times and Gazette, Oct.* 20, 1855, *p.* 391.

DISEASES OF THE SKIN.

100.—ON THE LOCAL TREATMENT OF ERYSIPELAS BY GUTTA PERCHA.

By Dr. G. Hamilton, Falkirk.

[It is a well known fact that the exclusion of atmospheric air exerts a beneficial influence on the healing of ulcers, wounds, and burns, and where this can be effected thoroughly, the healing power goes on quickly, scarcely any pain being felt in the parts. In a severe case of erysipelas of the leg, a portion of which threatened suppuration, the application of gutta percha plaster and tissues speedily reduced the pain and throbbing, and in two days from the application the leg was nearly well, no suppuration having supervened. Mr. Hamilton gives several other cases almost equally successful. Its modus operandi is by the exclusion of the atmospheric air from the inflamed surface.]

The compression exerted by the gutta percha, as I have employed it, seems to me so exceedingly slight, that we cannot, I think, as has been conjectured in the case of the collodion, suppose this agency to have acted with much efficacy. But if it be assumed that the exclusion of the atmospheric air is an essential condition to be attained in the treatment, then that application should so far be the best which most effectually fulfils this object; and none of those I have seen mentioned appears to me to answer so well for efficacy, as well as ease in the application, and economy, as the common gutta percha paste used by shoemakers (naphtha being the solvent), with the gutta percha tissue placed over it, which I have employed. If there be no discharge from the surface, this holds firmly from three to five days, and, when wished after that to be removed, comes off without difficulty, as a simple plaster. I keep the paste in a little tin pot, having a lid which screws on to prevent the naphtha evaporating, and when I wish to use this I heat it at the fire or gas, take a portion out with the handle of a tea-spoon, and apply it with the finger. I then immediately place over it the common gutta percha tissue, using the thinnest quality where sinuosities of the skin have to be followed, and, for other parts, that which is second in thinness. Discharges from a wound or from the surface interfere with its operation, the plaster becoming detached in a short time. Even under the circumstances, however, it does not appear to act at all prejudicially. Its specific and most favourable effects, nevertheless, seem to me to be produced when total exclusion of the air can be procured, and, when thus employed, the experience I have had of its action makes me think that it is worthy of considerable confidence, as a means, in conjunction

with other remedies, of combating this frequently formidable disease.—*Edinburgh Med. Journal, Dec.* 1855, *p.* 510.

101.—ON THE TREATMENT OF SYCOSIS.

By Thomas Hunt, Esq., Surgeon to the Western Dispensary for Diseases of the Skin.

[There are few diseases of the skin which are less manageable than this, yet, when the patient is in moderate health, it will frequently yield to arsenic; if this fail, cod-liver oil may sometimes be given with greater advantage, as the following case will show.]

Sycosis Menti.—J. F., aged 38, had suffered for two years from a tubercular eruption affecting nearly the whole of the bearded portion of the face, and rendering it impossible for him to shave. His employment was within doors, and he looked pale and worn. He applied for relief at the Dispensary.

January 2, 1855. He is somewhat weak and wasted of late, and has a slight cough, but there are no physical signs of pulmonary disease. He reported that he had formerly taken arsenic, which cured the disease, but, as he imagines, injured his health, and reduced his strength. A teaspoonful of Dr. De Jongh's cod-liver oil was ordered to be taken thrice a-day after a meal, and no other medicine.

February 6. Up to this time there has been a rapid improvement, but during the last few days there has been a relapse of the disease. The dose of the oil to be doubled, and 10 grains of the pil. rhei comp. to be taken every other night.

March 13. Improving very fast. He can use his razor with comfort. The oil agrees with him, and he is rapidly gaining flesh and strength, and looks better. The dose of oil to be again doubled, and the pills continued.

April 14. The original disease is well, but he is troubled with boils on the side of the face and elsewhere. The dose of oil to be reduced one-half, and a mild tonic substituted.

May 8. Tubercular eruption returned. Bowels costive. Continue the oil, take some cathartic pills, and discontinue the tonic.

29. The disease varies. Continue the oil, and take 10 minims of the liq. arsen. chlorid. with each dose.

June 12. Face nearly well; slight conjunctivitis. Reduce the dose of liq. chloridi to 7 minims.

July 3. Eyes still weak; scarcely any disease remains. Reduce the dose to 5 minims. Continue the oil.

The patient has not attended since the last date, and there is little room to doubt that he continues quite well, and is mainly indebted to the cod-liver oil for his recovery.—*Med. Times and Gazette, Oct.* 20, 1855, *p.* 389.

102.—*Treatment of Sycosis.* (From the French of M. Maurice Chausit.) By Dr. T. K. Barton, A.B.—The *treatment* of sycosis presents, in practice, considerable difficulties, arising from the tendency of the eruption to pass rapidly from a chronic to an acute state; and from the possibility, if not the frequency, of the return of fresh inflammation, the practitioner should never lose sight of this important circumstance, which will so much affect the treatment. First of all, it will be necessary to remove or avoid the causes which tend to produce the disease, such as errors of diet, exposure to a hot fire, and the use of the razor. We would advise, in all cases, the beard to be cut with scissors. When sycosis presents itself in the acute form, and during the inflammatory period, it will be necessary to insist upon the antiphlogistic line of treatment, to consist in the application of leeches behind the ears; or even bleeding from the arm, if the patient be young and strong, is useful in the beginning. We would advise, too, refreshing drinks and a mild diet. Locally, we employ emollient fomentations, cataplasms of the fecule of potato, and infusion of marshmallows (*althæa officinalis*); we insist especially upon the use of the latter, while the inflammation lasts. When sycosis

exists in, or has passed into the chronic state, when all trace of local inflammation has ceased, and it is decidedly in the tubercular stage, it becomes necessary to have course to resolvent means more or less active. We have obtained good results from alkaline douches, and from the steam douches, administered at the temperature of 30° to 32° of Reaumer, for ten minutes. We have also found useful an ointment of the ammoniacal proto-chloride of mercury, or the iodide of sulphur, in the proportion of ʒss. to ℥i. of lard. This should be rubbed on at night, and in the morning the diseased surface washed with an alkaline solution (bicarb. potassæ ʒi.; aquæ distil. ℥xvi.) We consider that it is only in the alternate employment of these different means, according as the eruption is in an acute or chronic state, that a certain and rapid success can be gained in the treatment of sycosis. This treatment will be greatly aided by the employment, when they are required, of laxatives, of calcined magnesia, or the sulphates of potash or soda, or by the administration of the waters of Vichy.

It has been proposed to employ cauterization for the cure of sycosis; but M. Cazenave has rejected this as quite inadmissible, inasmuch as the remedy, if it is at all effective, is worse than the disease. Counter-irritation also should not be employed in the treatment of sycosis, as it tends to excite what we should seek to avoid, viz., a return of the acute state of the disease.—*Dublin Hospital Gazette, Oct.* 15, 1855, *p.* 281.

103.—*Treatment of Porrigo Decalvans.* By J. Burton, Esq., Walsall.—The whole calvarium must be shaved every four or five days, and carefully washed each night and morning with soft soap and soft water, and after each washing anointed with the ointment (*ut infra*), which should not be "plastered" on, but rubbed into the depilated spots with the finger.

A wig should be worn, and it is, to my mind, preferable to any less pervious covering for the head.

The mixture to be taken three times a day, and steadily persisted in. The time of cure is very variable. The worst case I have had to treat came under my care on March 19th, 1851; in two months it began to improve; and on May 20th, 1852, I gave up all treatment, it being then cured completely. The patient was a boy, aged 6 years, who had suffered for two years previously, notwithstanding "all manner of treatment by doctors and others." The larger part of the occiput and nucha, with many patches on other parts of the head varying in size from ½ to 1½ inch in diameter, were entirely depilated, the skin being of a polished eburnated appearance.

When the hair was restored, it was coarser than natural, and a decided shade darker, which continues to such an extent as to define the porriginous spots even yet.

The diet I have directed for my patients was only restrictive in respect to "trash" of all kinds, and was nutritive and substantial, though void of stimulants.

The medicinal treatment I adopted with the above case was—

℞. Potassii iodidi pur. gr. v.; potassæ liquoris ʒiss.; tr. cardam. co. ʒ i.; aq. fontanæ ℥ vijss. M. Coch. mag. ter quotidie sumend.

℞. Axungiæ recent. ppt. ℥i.; Creosot. pur. ♏x.; Ol. limonis q. s. M.

The above plan has never failed with me, and whether "really rational" or not, I must leave to the determination of others.

May I be excused in stating that I have got rid of several very obstinate and chronic cases of sycosis, by daily pencillings with tinct. iodin. comp., after all other means have apparently failed.—*Med. Times and Gazette, Jan.* 5, 1856, *p.* 10.

104.—OBSERVATIONS ON SOME OF THE MEANS RECENTLY PROPOSED FOR THE PREVENTION OF PITTING IN SMALL POX.

By Dr. James Wallace, Greenock.

[In a number of cases which came under Dr. Wallace's care, collodion was applied at various stages of the disease previous to maturation. The result was generally

satisfactory, but it produced no small inconvenience, for when tumefaction set in, the collodion, being inelastic, kept the parts in a state of pain, heat, and tension; for the same reason also it frequently cracked and required as frequent reapplication. On this account its use was given up, and a solution of gutta percha in chloroform used instead. The most suitable time for its application seemed to be just before maturation.]

It was painted on *immediately before complete maturation*, which occurred in three on the fifth day of the eruption, in three on the sixth, in ten on the seventh, in two on the eighth, in one on the ninth, and in one on the tenth. Under this plan, the increase that took place in the swelling was found to be in general moderate, and not such as to prevent the gutta percha yielding readily to it, nor to cause that feeling of heat and tension, which was so much complained of by the patients subjected to the collodion application; and when the tumefaction subsided, the mask was found to adhere intimately to all the subjacent parts, except at the angles of the mouth, where, from the lips, it invariably became detached. But this was easily remedied, either by touching lightly, with a camel-hair pencil dipped in chloroform, the loose portion of the covering, which in that way became softened and collapsed upon the skin; or, which is better, by painting anew the exposed part of the face, without disturbing the separate pellicle at all. Farther than this no interference was necessary, the whole coating having been allowed to remain on till desquamation spontaneously occurred, when the face was found, in all the cases, to be in a very satisfactory condition. The ultimate result, too, was exceedingly favourable, scarcely any pitting having been noticed when the patients were dismissed, except in two or three instances, in which, however, it was moderate, and in which, but for the covering, there would, I am convinced, have been frightful disfiguration. At the same time it ought to be stated, that those cases which I had an opportunity of seeing, some months after their discharge, presented the marks much more distinctly than when under observation at the hospital, but still so modified, as to show that they had been very materially benefited by the means resorted to.

From this it will be seen, that the gutta percha, like the collodion, though to a much greater degree, succeeded only in mitigating, and not entirely preventing, pitting. Hence, some may be apt to conclude, that its efficacy was much inferior to that of other applications, which have of late years been brought under the notice of the profession. But in estimating the comparative merits of these, regard should be had to the appearance of the patients, as exhibited *long after* they had been under treatment, as well as on their leaving the hands of the physician. Now, there is strong reason to suspect, that inattention to this has led the advocates of these *abortives*, or *ectrotics*, as they call them, to overrate their value very materially, the history of their cases seeming to go no farther than the date of their discharge, without any allowance being made for the absorption and contraction which invariably takes place, to a greater or less extent, in a spot which has been the seat of a small-pox pustule. The face, undoubtedly, may appear, when the patients are fit for dismissal, smooth, and free from all trace of pitting; but after some time depressions will, to a certainty, ensue. At all events, so far as my experience goes, marking as deep, and in some cases much deeper, than that noticed after treatment with gutta percha or collodion, has followed the employment of some of the substances referred to. Of these none has been more highly recommended than the unguentum hydrargyri, thickened with starch, which was first proposed by M. Briquet of Paris, and afterwards brought prominently before the profession in this country by Professor Bennett of Edinburgh. The advantages attending its uses were stated to be, abortion of the pustules with prevention of swelling and pain, in addition to almost complete freedom from pitting, in consequence of which, and more especially as I had found the collodion to fail as an ectrotic, I was readily induced to give it a trial before having recourse to the gutta percha. I employed it, accordingly, in three cases, of which one had the disease in the confluent, and two in the discrete form. In the first, it was applied on the fourth day of the eruption, which was then moderate, and little more than papular; but two days afterwards it became more profuse, and accompanied with pain, heat, and tumefaction, all of which increased to a great degree. At length the pustules ran into one another on the face and extremities, and the mouth and fauces, which were

closely studded with them, swelled to such an extent, as almost entirely to prevent deglutition, the larynx ultimately becoming involved, and death closing the scene, fifteen days from the appearance of the eruption, and eleven from the commencement of the treatment.

So far, then, as this case was concerned, the ointment was not at all successful, either in checking the development of the pustules or in alleviating the swelling and pain. Nor was its power in these respects more than problematical in the other two, for although it was applied in both when the eruption was discrete, scanty, and papular, there was ultimately a considerable crop of pustules, the progress of which was in no way different from that exhibited on the rest of the body. The amount of swelling, heat, and pain, however, was moderate, but at the same time no less than what might naturally be expected in instances of the disease presented in the modified form, the cicatrices, besides, being found, when the patients were ready for dismissal, as deep as those observed after the employment of collodion. There was, no doubt, entire freedom from that feeling of tension which was so much complained of by those subjected to the latter application; but this advantage was more than counterbalanced in the two cases which advanced to a favourable termination, by the occurrence of mercurialism, which was unequivocally manifested by swelling and ulceration of the gums and mucous lining of the cheeks and lips, as well as by salivation and the characteristic fetor of the breath. The urine, moreover, became albuminous, but whether this was caused by the original disease, or by the introduction of the mineral into the system, could not be with certainty determined. As it took place, however, simultaneously with the ptyalism, and as mercury is known sometimes to be followed by such a condition, there was just as much reason for believing that it was the effect of this, as that it was an instance of that species of albuminuria (*temporary*), which not unfrequently arises during the course of fevers and some acute diseases. But leaving the state of the urine out of the question, the liability to mercurialism alone was sufficient to make me entirely abandon the use of the ointment, and I did so the more readily as I found that I was not singular in my experience, a similar accident, about the time my cases were under treatment, having been met with in the practice of Dr. Paterson, of Tiverton, whose paper on the subject induced Professor Bennett himself to discard the application altogether. It then occurred to the latter observer, that as the benefits arising from it might be due more to its allowing cicatrization to advance according to the modelling process, than to its action as an absorbent, a paste sufficiently coherent, and capable of excluding atmospheric air, might answer as well as the mercurial in effectually accomplishing the object desired. He therefore recommended, after some trials, one composed of three parts of the carbonate and one of the oxide of zinc, made into a proper consistence by means of olive oil; but of this also my experience corresponded in no degree with his, for in two cases in which I was led to employ it, though applied when the eruption was scanty and vesicular, it did not succeed at all as an abortive, the face, as the disease advanced, becoming closely studded with pustules of a full size, and attended in one with severe pain, and in the other with a large amount of swelling, which was, however, in the former, not at all considerable. Nor was cicatrization mitigated in any way whatsoever, deep pits having formed on the nose and forehead, even before the dismissal of the patients, in one of whom, moreover, when seen four months afterwards, the scarring on the rest of the face was so marked as to force the suspicion that a different result did not ensue in the other. There was, therefore, no encouragement to pursue any farther this method of treatment, the inferiority of which to that by gutta percha must at first sight appear strange, when it is considered that both are intended or supposed to operate on the same principle. But leaving out of view the so-called ectrotic power, it must be evident that a soft paste like this zinc composition will, before drying, be constantly exposed to removal by the bedclothes of the patient, both from his tossing about during sleep, and from the impossibility of keeping him always on his back, so that *frequently* the pustules over a large surface will be without any protection, and on *that account* very liable to rupture. The application, of course, can be easily *renewed*, but still mischief is done in the interval by the free admission of air, *which*, under the gutta percha, is effectually excluded by a single coating, except, as has been already shown, at the angles of the mouth, where, curiously enough,

however, there is seldom much pitting, even when the eruption is presented in an aggravated form. It is extremely probable, besides, that the latter possesses another advantage over the former, in the moderate amount of support which it affords to the whole face; in consequence of which the cicatrices must be more neatly moulded than they would be if protected by a substance allowing the opposite margins of each pustule to separate freely from one another.

But in addition to these modes of treatment, there is still another of recent introduction, with which also the gutta percha contrasts not less favourably. This was proposed by Dr. Crawford, of Montreal, and consists in painting on, once or twice a-day, from the time the eruption appears till the pustules are fully matured, a strong solution of iodine in alcohol, the benefits attending it being said to be prevention of the pitting, and, excepting the smart of application, relief to the local uneasiness. In regard to the latter of these, however, it was found, in my hands, not to answer, for in the two cases in which I was induced to give it a trial, it caused a great amount of pain, which was *almost constant*, and not at all warranted by the ultimate result, the marking, in the one which terminated in recovery (the other having died eleven days after admission), being no better than that noticed even after the use of collodion. But independently of this, it labours under a serious drawback, in the necessity of its being employed immediately on the appearance of the eruption. This, it is plain, must confine its application to a comparatively small number of those afflicted with the disease, for it is well known that in the vast majority of instances admitted into hospitals, as well as in many occurring in private practice, the early stage is past before the patients come under treatment. With the gutta percha, however, such a condition is not required, the period most suitable for its use being, as has been already shown, that immediately before complete maturation, so that in very few cases will the opportunity be lost of affording them a safe, easy, and efficacious means of materially modifying future disfigurement.

From a review, then, of the foregoing observations, it may be concluded:—

1. That pitting cannot be *entirely prevented* by any of the applications to which reference has been made.

2. That by means of several of them, however, it can be *mitigated* to a very considerable extent.

3. That, with the exception of gutta percha, they are attended with some disadvantages.

4. That the gutta percha, besides, is the most useful in accomplishing the desired effect. And

5. That, in order to its success, it should be painted on just before maturation is complete.—*Glasgow Med. Journal, July* 1855, *p.* 150.

105.—ON CARBUNCLE AND BOIL.

By James Syme, Esq., Professor of Clinical Surgery in the University of Edinburgh.

Carbuncle is a circumscribed inflammatory condition of the true skin. It begins with a small red point, which gradually and rapidly extends with a peculiar tingling and pungently-painful sensation much greater than might be expected from the degree of morbid change apparent to sight. The skin becomes loosened in its texture, and swollen, so as to be an inch or an inch and a half in thickness. Small yellow, points appear on the surface, and are presented by a section of the dermoid texture, interspersed in the interstices of its substance. These local changes are attended with a more than corresponding amount of constitutional disturbance, the patient being unable to sleep or eat, having an anxious expression of countenance, and presenting all the characters of excessive irritation. If the evil be permitted to pursue its course, it terminates in sloughing of the affected skin, and either death of the patient from exhaustion, or a very tedious recovery from the loss of substance which has been sustained. All sorts of internal remedies and local applications have little or no control over the progress of a carbuncle, and the only effectual method of cutting short its advance is to make a free crucial incision completely *through the whole extent of* inflamed skin. Immediately upon this being done, *the redness disappears*, and the pain ceases, the constitutional disturbance soon

subsides, and the affected skin, unless already deprived of its vitality, quickly resumes its natural thickness and healthy action, so as to remove all obstacle from the healing process.

The patient now before you, tells us that, about a fortnight ago, a small red speck, like the head of a pin, appeared on his back, and quickly extended, so that at the time of his admission, the day before yesterday, the circumference of inflamed skin was equal to that of a small plate. The affected surface was slightly elevated, and of a fiery-red colour, with yellow points interspersed. I made a free crucial incision through the thick and soft integument, which was studded with numerous yellow points, similar to those on the surface, placed pieces of lint between the cut edges, desired that a poultice should be placed over them, and restricted the diet to milk with farinaceous food. You now see that all the carbuncular characters have disappeared, and the patient says that he "has been mending every hour" since the incisions were made.

Reason and experience being so decidedly in favour of the practice here employed, I should consider it unnecessary to say a word now upon the subject were I not aware that the most erroneous ideas in regard to the pathology, as well as treatment, of the disease, are extensively diffused; and as my duty is not merely to inculcate what seem to me sound principles of practice, but to counteract and extirpate the misleading notions which you may have elsewhere acquired, I deem it necessary to warn you against the four following errors, which are very generally entertained, and which may, perhaps, in some measure, account for the large numbers of deaths connected with carbuncle in some bills of mortality.

In the first place, I beg to remind you that the disease is not subcutaneous, but seated in the skin itself. Secondly, that the object of incisions is not to allow room for the escape of matters confined under the skin, but to extinguish the inflammatory action, through discharge of blood and the relief of tension, by dividing the texture in which it is seated. Thirdly, that the application of caustic is the extreme of absurdity, since it directly insures what the great object of treatment should be to prevent, and by destroying the skin affected, instead of restoring it to a healthy condition, necessarily protracts recovery, and renders it less perfect. Fourthly and lastly, I beg to warn you against giving the patient wine and nourishing food, or employing local applications of a stimulating kind, so long as the inflammatory tendency continues in operation. The rapid progress which the poor starved creature you have just seen is making on the spoon diet must satisfy you that the weakest condition does not then require support, while the disease, so far from being limited to an impoverished state of the system, is more frequently met with in persons suffering from repletion. In both of these conditions the disease depends upon a peculiar morbid tendency, and so long as it continues, the effect of stimulants will certainly be to aggravate the evil.

It may here not be out of place to say a few words in regard to Boils, which are very nearly connected with carbuncle. Like it they are seated in the skin, begin by points so small as to be hardly perceptible, and extend from the centre in a circumscribed form, with local and constitutional symptoms of disturbance greatly disproportioned to their extent. They are distinguished by being restricted to a smaller size, by presenting a more convex surface, and by tending to suppuration rather than to sloughing. It is true that they contain a white substance, named their core, which looks like, and is often mistaken for merely dead cellular substance, but is chiefly the result of a morbid deposition. Fomentation and poultices may soothe the uneasy symptoms proceeding from boils, but the only effectual mode of checking their progress is to make a free crucial incision through the whole extent of inflamed skin which constitutes their base. It is often said that "opening" boils does no good, and this may be true, since the incision, like that for the remedy of carbuncle, must be directed, not with a view to evacuation, but to free division of the affected skin. The opinion generally entertained at present, is, that boils should be allowed to pursue their course, under palliatives, with a liberal diet, and patients are frequently met with who have suffered for months, and even years, from their successive formation. Now it seems to me that nothing can be more injudicious than such a procedure, since each boil, instead of being extinguished by a timely incision in its infancy, is allowed to go through the whole of its irritating course with attendant constitutional disturbance, which instead of

benefiting the patient's system must increase its derangement and liability to similar formations. Between two and three weeks ago a medical gentleman of great respectability in this city called on me, complaining of a boil on his arm, which he had been poulticing, and did not wish to remedy by incision. Two days afterwards I was asked to visit this gentleman, found him in bed, and was told that he had been deprived of sleep throughout the preceding night by a large boil on his haunch, which if allowed to pursue its course, threatened to produce a great amount of distress, and seriously to disturb his health. Having been requested to do what seemed best, I made a free crucial incision, and restricted the diet to milk with farinaceous food. Next day I found the patient down stairs, sitting in his library, perfectly comfortable, as he had been ever since submitting to the incision. I have no doubt that if the system at present in fashion had been pursued in this case, my friend, instead of enjoying perfect health, would now have been fairly entered upon a course of annoyance no less distressing than unlimited in its duration.—*Lancet, March* 8, 1856, *p.* 269.

106.—*New Method of Treating Phagedæna.*—Mr. Cock has recently been trying in Guy's Hospital, a plan of treating phagedænic ulcers by constant irrigation. The method is, to have the sore well exposed, and the affected limb placed on some waterproof material; a reservoir above the bed is then filled with lukewarm water, and, by means of an elastic tube, a stream is kept continually flowing over the surface of the sore. By this means all particles of discharge, &c., are washed away as soon as formed, and the ulcer assumes the clean, pale appearance of a piece of meat which has been long soaked. In all cases in which it has been practicable to employ the irrigation efficiently, a speedy arrest of morbid action has been secured, and the number has included several in which the disease was extensive and severe. The theory of the treatment is, that phagedænic action is a process of local contagion—the *materies morbi* by which the ulcer spreads, being its own pus. Admitting this supposition—which there is every reason for doing—to be true, the object to be kept in view in curative measures is either to decompose or to remove the local virus. This end is accomplished somewhat clumsily by such remedies as the nitric acid, which unless so freely used as not only to char up all the fluid matters, but to destroy the whole surface of the ulcer to some depth, fail to prevent a recurrence. Mr. Cock's plan of subjecting the ulcer to a perpetual washing, attempts the accomplishment of the same end by a more simple and direct method. It involves no pain to the patient, and does not destroy any healthy tissues. Its one disadvantage seems to be, that, excepting on the extremities, its use would be attended with some inconvenience, from the difficulty of preventing the water from running into the patient's bed. Should, however, further trials confirm the very favourable opinion which has been formed at Guy's Hospital as to its value, these difficulties might, no doubt, be surmounted by the contrivance of suitable apparatus. The directions as to the temperature of the water are, that it should be as warm as comfortable to the feelings of the patient; and, as preventive of smell, Mr. Cock advises the addition of a small quantity of the chloride of lime or of soda.—*Med. Times and Gazette, April* 12, 1856, *p.* 362.

107.—*Rapid Treatment of Itch.*—The remedy here mentioned is the chloride of sulphur dissolved in sulphuret of carbon. The chloride, easily obtained by the action of chlorine on sulphur, was at first employed in its pure state in minute quantities, but this not acting promptly enough, the sulphuret of carbon was, after various trials, chosen as the best vehicle. Twelve grammes of chloride are dissolved in 100 of the sulphuret, this being the utmost quantity required for an adult. The application should be made in a well-ventilated room, removing all copper articles liable to tarnish. The patient is placed quite naked on a stool, and his head is covered with an immense cone made of strong paper, opened only at top, so as to protect the face from the effect of the sulphureous vapours which exhale. The whole surface is rapidly smeared over with the mixture, by means of a large badger's-hair-brush or charpie, applying it especially to the parts where the acari most resort.

Any hospital attendant can do this. A general sense of heat, without painful smarting, immediately follows, and the patient is thus cured in five minutes. The itching ceases as if by magic. After thirty-six hours a bath is taken, the patient being recommended to abstain from washing his hands and neck until then; and baths on alternate days for a week, to complete the treatment. Complications that may have arisen may, however, require treatment; but they soon subside. When eczema predominates, some gelatinous or starchy baths are employed, and porrigo is usually relieved by alkaline baths. When the complications are very aggravated, they should be somewhat modified before the treatment is commenced, or this may cause pain. After disappearing, the itching may return in five or six days, but is of a different kind, dependent on persistent porrigo, and relievable by alkaline baths.—MM. Dusard and Pillon, in "L'Union Méd." 1855. No. CIX.—*Med. Times and Gazette, April* 12, 1856, *p.* 368.

108.—ON WOUNDS OF THE SCALP—CONTUSION OF THE BONES.

By Prescott Hewett, Esq., Prof. of Anatomy and Surgery to the Royal College of Surgeons.

[Severe cases of this kind, where the scalp is extensively separated and the bone denuded, sometimes run a very rapid course to a fatal termination; but whenever this does occur, it is much more owing to the contusion of the bone than the denudation.]

In the flat bone of the skull, with its compact tables and intervening cancellous tissue, the contusion seldom reveals itself on the surface; it is in the diploë that the blow produces its effects. Examined as to its compact tables, such a bone, externally, may be to all appearance perfectly healthy; but the contusion manifests itself in the diploë by an extravasation of blood within its cells or in breaking-down of the delicate fibres of their walls. In such a condition, the bone has hidden within itself all the seeds of the future mischief, if inflammation should arise in the bone—and arise, in all probability, it will, if the diploë has been much injured; and the great tendency will be, in certain habits of the body, to produce suppurative inflammation, and suppuration in such a situation is fraught with the utmost danger.

The intimate connexion of the bone to the membranes of the brain: the large and numerous venous channels in its cancellous tissue, render diffuse suppuration in the diploë not only one of the most formidable complaints the surgeon can have to deal with, but one which but too often sets at naught all his resources.

Let us look to the train of evils which may arise in the membranes of the brain, after a contusion of the bone, followed by mischief in the diploë.

For days, for weeks even, there may be no appearance whatsoever of the mischief which is smouldering. Soon recovering from the effects of the accident, if it was a slight one, the patient appears to be in perfect health. For a time, all wears a favourable aspect; but generally, within a fortnight or three weeks, the first symptoms begin to show themselves:—pain in the head, feverishness, and soon an unhealthy aspect in the wound, if there be one; a spontaneous secession of the periosteum from the bone, which, if denuded, becomes dry, and may be seen gradually to lose its natural colour, being first of a dead white, then of an opaque yellow, a greenish, or it may be of a brownish hue. Matters go on thus for a longer or shorter period, that is, as long as the inflammation does not spread to the inner table of the bone; but, as soon as this is reached, the dura-mater becomes involved; inflamed in its turn, and it may be in a sloughy state, this membrane secedes from the bone, lymph or pus is poured out on its external surface, and as long as the inflammation is limited to the dura-mater itself, generally only that portion of the membrane corresponding exactly to the inflamed bone is diseased; but when the inflammation has once passed on to the parietal arachnoid, matter is thrown out into the cavity of this membrane, and then the visceral arachnoid, the pia mater, and the brain itself, soon present all the appearances of severe inflammatory action. The symptoms are in keeping with the progressive stages of the disease. As long as *the inflammation* is confined to the bone they are few, and not strongly marked; *but so soon* as the dura-mater is reached, then decided symptoms of the cerebral

mischief soon manifest themselves; increased feverishness, repeated rigors, intense pain in the head, sickness, drowsiness, occasional wandering, coma, and sometimes paralysis.

Such cases as these strongly resemble those which, of late years, have so much occupied the attention of the profession. I allude to the diseases of the ear, where the bone is affected, and where the inflammation manifestly spreads from the bone to the membranes of the brain. In these cases the disease may lie smouldering for years. I have known it do so for upwards of twenty; and as long as the mischief is confined to the bone, the symptoms are trifling ones; but suddenly, without any apparent cause, it spreads to the dura-mater, and then follows the train of cerebral symptoms.

[Mischief so insidious in its course, and so constantly and rapidly fatal, when once fully developed, naturally led surgeons to bleed largely and repeatedly as a preventive; but we may fairly question whether we ought to bleed patients without a symptom of serious disease. We are told to do so to prevent inflammation of the dura-mater, but it is only one case in seventy where we find mischief in the dura-mater after death. As a general rule, blood ought never to be drawn without a clear indication of its necessity. In the majority of cases of severe wounds and contusions, patients recover, if kept perfectly quiet, and with an occasional saline purgative; but whenever inflammatory symptoms begin to make their appearance, then is the time to have recourse to antiphlogistic treatment, which must be more or less strict according to the nature of the case.]

Acute inflammation of the dura-mater, unless caused by the state of the bone, is rarely seen in our dead-houses, after an injury of the head. Acute inflammation, on the other hand, is not uncommonly met with in the sub-arachnoid tissues after an injury of this kind.

When acute inflammation of the dura-mater does exist, however, it is generally, from my own experience I might say constantly, accompanied, even in its earliest stage, by inflammatory exudation within the arachnoid. But inflammation of the sub-arachnoid tissues seldom gives rise to similar appearances; the inflammatory exudations are, for the most part, confined to the structures in which they originate, and only make their appearance on the free surface of the arachnoid when the inflammation is very intense.

Failing in all our antiphlogistic remedies, have we any other means of relieving the patient? The only chance left is in the trephine. But are we to trephine all cases of blows on the head, with bare bone and symptoms of suppuration?

A close examination of cases, under such circumstances, will show that, in many instances, we really have no indications which could lead us to apply the trephine. Throughout their whole course, there is, in these cases, not a single sign which could lead us to suppose that mischief is occurring between the bone and the dura-mater, and the only symptoms present from beginning to end, are those of diffuse suppuration of the membranes. The dura-mater may be inflamed, separated from the bone, and in a sloughy state; nay more, if the wound is in the parietal region there may be suppuration diffusing itself extensively along the branches of the middle meningeal artery, and yet we may have no evidence whatsoever to prove that all this mischief exists.

[But the dura-mater, when laid bare by the trephine, is so often found to be perfectly healthy, that its use has of late years been abandoned, although the symptoms of suppuration may have been very evident.]—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 361.

109.—*On Wounds of the Scalp.* By F. C. Skey, Esq., F.R.S.—Whether such wounds have been treated by plaster or by suture, erysipelas has too commonly followed on about the third or fourth day, extending more or less generally over the entire head and face. In the course of last winter I delivered a clinical lecture on these cases, advocating their treatment by means of quinine in full doses. I am fully confirmed in my opinion of the efficacy of this mode of meeting the difficulty by the enlarged experience of the last six or nine months, which has brought under my notice at least a dozen cases, additional to those I had previously treated on the tonic principle. The opposite treatment of such cases of

traumatic erysipelas, by means of salines and aperients, may be equally efficacious for anything I can assert to the contrary. If it be equally efficacious, it is somewhat curious that the treatment by quinine, steel, and wine, does so little injury. —*Lancet, Jan.* 26, 1856, *p.* 87.

110.—*On Chronic Ulcers of the Legs.* By F. C. Skey, Esq., F.R.S.—Abundant have been the examples of treatment of chronic ulcers of the legs by means of the internal administration of opium. I know of no treatment at all comparable to this, so rapid, or so efficient. These cases have had many observers, who can bear testimony to its value. Exactly in proportion to the amount administered is the regeneration of the defective structure. Years will probably yet elapse before this principle will be universally acknowledged, before the medical community will admit that in opium we have an agent far more valuable than that derived from its *comparatively* worthless power as a sedative. It is notorious, that the chronic ulcer—the disease of ten or even of twenty years' duration—is unattended with pain. To suppose that opium effects its local marvels by any sedative property in the drug, appears to me worthy only the advocacy of a senile female, or of an uninstructed youth. If we administer five grains of the soap and opium pill, night and morning, to a man advancing in life, who has been carrying about with him for ten years a large, callous ulcer, with an ash-coloured base, surrounded by high walls of organized lymph, and in which there remains not a vestige of activity, good or bad, advancing or receding, the moisture from which is a hot ichor, becoming sanious under provocation,—if we examine carefully this surface at the expiration of forty-eight hours, we shall find it speckled with red points; these are future granulations, and, in ten days, the whole of the base of the wound will be carpeted with them.—*Lancet, Jan.* 26, 1856, *p.* 88.

111.—HOSPITAL THERAPEUTICS.

In cutaneous diseases the utmost confusion exists as to the characters and infectiousness of eczema, for instance, as compared with porrigo. The latter is now cured by iodide of lead ointment and alkaline lotions, with the internal use of iodide of arsenic; while, in eczema, the value of cod-liver oil is also beginning to be almost universally conceded. Dr. Addison, of Guy's Hospital, in opposition to more common opinions, believes that much of the obstinacy of eczema depends on its being infectious, though the dermatologists doubt this fact. Opium, as continued to be used by Mr. Skey very extensively in all kinds of indolent ulcers, especially those of the lower extremities, has lost none of its *prestige* in these cases. Creosote, made into pills, with liquorice powder, (the only mode, it is said, of forming it into pill mass,) has also been found very valuable in various skin affections; especially those of the cancroid character. Turpentine, also, applied externally.

In the case of a man suffering under the effects of several spreading sloughing ulcers on both thighs, the result of the artificial inoculation of syphilis matter at the Lock Hospital, Mr. Stanley directed the attention of his class, in November, to the peculiar character of these sores, and ordered the external application of the old "Friars' Balsam" (tinct. benzoin co.), which he said he had found the best of all the usual remedies for such affections. The man has been rapidly improving.

In a second case of syphilitic psoriasis, Mr. Stanley remarked to his pupils, that iodide of potassium and sarsaparilla would, in appearance, cure the disease for a time; but, as a matter of certainty and safety, he always preferred, where this affection was very well marked, to see it disappear under the effect of mercury; the patient was accordingly ordered the compound calomel pill, night and morning (Plummer's pill), and if it affected the mouth so much the better, though the action on the mouth is not necessary, if the sores begin to heal without this change; salivation being only one effect of mercury, the healing of the sores another, but one more essential.

Oxide of zinc, as the best medicine in chorea, and oxide of silver or oxide of zinc, in some forms of epilepsy, have been extensively tested in numerous cases in all the hospitals; oxide of zinc especially, by Dr. Hughes, as noted at Guy's Hospital, in more than 200 cases. A syrup of iodide of zinc, as ordered by Dr. Barlow, at Guy's, is perhaps the most agreeable form of the medicine. We have observed both Dr. Todd and Dr. Addison recently dwelling in clinical remarks, on the necessity of not mistaking hysteria for epilepsy, the chief difference being, that in the latter the loss of consciousness is extreme, but not so in hysteria. In all else, however, the two diseases are apparently the same, and are very often mistaken the one for the other. We have "half a thousand shades of epilepsy," according to the latter physician; while Dr. Todd has found cases of "incurable epilepsy" which resisted oxide of silver, to be, on further examination, hysteria. All these cases agree in leaving little or no organic lesion by which they might be localised. Chorea is most common, in all the cases seen at hospital, between the age of nine and fifteen, and is most frequent in females. The upper extremities are more affected than the lower, thus pointing to emotional and reflex influences.

The physiology of sugar in the system has recently undergone so many changes that diabetic sugar in the urine in patients attracts unusual attention. A case of this kind has been under the care of Dr. Bence Jones, at St. George's Hospital, for some weeks; and as this physician shows his class, week by week, the changes in the amount of sugar, resulting from changes in animal and vegetable diet, treatment, &c., and explains the copper and other tests for glucose, such patients possess an unusual interest for students. Diabetic sugar is never generated from milk sugar, though it need scarcely be remarked it is quickly formed from other products very nearly allied, such as albumen, starch, or vegetable sugar. Diabetes is more under the control of regimen than medicine. Milk is a very proper diet for diabetic patients. Dr. Bence Jones observed in this case, though milk abounds in sugar, some physicians, since the researches of Bernard and Lehmann, seem inclined to look on the disease as not so much a new formation of sugar as an accumulation of that always forming in the normal state, and in some way obstructed in its exit, like urea or bile detained in the system. Dr. Pavy, of Guy's Hospital, believes he has found that diabetic sugar is a specific form, different from other modifications of glucose. It seems very well established, that the sugar of the liver is formed from the albuminous products of the blood of the portal vein; and still more recently it has been observed that fibrin and hæmatin, disappearing, also, in the liver, whether as the result of tuberculous or inflammatory crases of the constitution, may give rise to sugar. Some other recent researches would point to diabetes as a peculiar form of nervous disease, rather than a renal or hepatic affection, the kidneys only acting in a secondary point of view. In hospitals also, it is sometimes found that albumen and sugar alternate in the same urine, still further indicating a connexion between these two substances in the portal system. Amongst recent remedies, gluten bread has been much recommended, but fine bran bread is preferable. Maccaroni is also highly praised. Amongst medicines, citrate of ammonia and opiates are perhaps the best.

The very great usefulness of the liquor ammoniæ acetatis, in cases of Bright's disease of the kidneys, deserves to be more generally known than it is. We sometimes see this affection given up as beyond all cure; yet at Guy's Hospital, where the affection was first discovered, and since then has been most carefully studied, Dr. Addison has found the liquor ammoniæ acetatis, by acting on the skin and relieving the congested condition of the kidney, the best of all the remedies for this disease; diuretics at the same time to be strictly avoided, but not mercurials.

The use of setons, though almost exploded in diseases of the joints, is found to be very beneficial in the shape of thin single filaments of gutta percha, or some other substance not permeable to pus, in chronic inflammations of the eye. In cases of obscure melancholia, a seton to the nucha sometimes acts also like a charm. Some extraordinary uses of iodine have been referred to in hospitals, but it requires greater courage, perhaps, than discretion to adopt them. A case diagnosticated as hydatid cyst in the thorax, recently described by Vigla, was punctured, giving exit to hydatids, and the sac subsequently injected with iodine. The patient quite recovered several months after.

In more than one case of hydro-pericardium the fluid has been let out in French

hospitals, and tincture of iodine injected with good effect. In a case of this kind, at St. Mary's Hospital, it was deemed a very dangerous experiment to puncture the pericardium at all, while the uses of iodine have been limited to injecting abscesses on the surface, ovarian cysts, and hydrocle, in all of which it seems to answer better than any other therapeutic agent. In a case of ovarian cyst at St. Mary's Hospital, where Mr. I. B. Brown followed up paracentesis of the cyst with tincture of iodine injection, more than a year since, the result has been very encouraging, as the woman continues in good health, the tumour having only refilled to a very insignificant extent. In a somewhat similar case, Dr. West, at St. Bartholomew's Hospital, remarked, that it was something gained during the year, that we had at length a remedy in these cases that did not effect positive mischief, and as such, iodine deserved very general confidence.—*Lancet, Dec.* 29, 1855, *p.* 625.

112.—*Astringent Lotion for Ulcers.*—A lotion, consisting of half a drachm of the tincture of catechu, to a pint of the decoction of oak bark, is a favourite one at the Aldersgate-street Dispensary, as an application to foul and indolent ulcers on the leg. Mr. Savory, the surgeon to that institution, finds it superior in efficiency to most other astringents. It is applied freely, a piece of lint being well soaked in it and laid over the sore.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

113.—*Glycerine as a Dressing for Wounds.*—At the meeting of the Academy of Medicine in Paris, on October 25th, M. Demarquay made a communication on the surgical uses of glycerine.

Having under his care the patients of M. Denonvillers in the hospital at St. Louis, he found some whose wounds had been attacked by hospital gangrene, for the removal of which citric acid, nitric acid and the actual cautery, were employed in vain. Glycerine was then tried; in twenty-four hours the wounds had assumed a healthy appearance, the fever diminished, and the patients rapidly recovered.

Struck by this circumstance, M. Demarquay determined to treat all wounds with glycerine, and the following result was obtained. All the wounds treated in this manner have a rose colour, and are so clean that there is no necessity for washing them, or removing with a spatula the coagulum of cerate and pus which usually renders the dressing of wounds so tedious and painful. The cloths which have been dipped in glycerine are removed with the greatest ease: still more, this substance modifies suppuration, as M. Demarquay ascertained from the observation of some cases which had previously been dressed with cerate. The granulations are small, and there is no necessity for applying caustic. The dressing is soft and comfortable to the patient, and cicatrization is promoted. These results have been confirmed by M. Denonvilliers.

The mode of applying the glycerine is very simple. A piece of linen dipped in it is placed over the whole of the wound, and over this is applied a little charpie, a compress, and a bandage.

In relation to the above communication, which appeared in the "Gazette Médicale" for October 27th, and in the other French journals, M. Petel relates the following case in the "Gazette des Hôpitaux" for November 10th.

A woman, aged 30, came under his care on account of ulcerative stomatitis. The disease had been present for a month; the gums were red, soft, and had partly receded from the teeth, and the mucous membrane of the mouth, near the molar teeth, was in a state of ulceration, which might almost be called phagedenic. The patient was able to take only liquids, and had not been able to sleep for a fortnight. M. Petel applied glycerine, and gave chlorate of potash internally. On the next night the patient slept well: in three days there was a marked improvement in the appearance of the ulcerated surface; and in nine days the patient was cured.

M. Dallas, chief surgeon of the *hospice* of Sisters of Charity at Odessa, stated *Gazette des Hôpitaux*," December 15th), that, since 1851, he has not only used

glycerine in the dressing of wounds and in the treatment of various affections, but has caused it to become a popular remedy in some parts of Russia. He relates the following case:

A German farmer had his hands and feet frost-bitten five years ago, and the parts had remained swollen and painful. Some months ago he presented himself to M. Dallas with a deep gangrenous ulcer, occupying the whole of the back of the right hand. The patient could not bend his fingers. The patient was treated by baths and topical applications of glycerine. In ten days the black eschar fell off, and left a grey-looking wound, so large that all the fingers seemed detached: the pain, however, was less. The swelling gradually lessened, and the wound shewed a disposition to cicatrize. At the time when M. Dallas wrote, the patient had no pain, and could bend his finger with ease; there was nothing but a small wound left, which was cicatrizing rapidly.—*Asso. Med. Journal, Jan.* 19, 1856, *p.* 49.

114.—*Cancerous Ulcers.* By JOHN VALENTINE, Esq.—In a case of cancerous ulcer, I find, after a variety of applications, the following lotion to answer extremely well:

℞. Plumb. acetat. ℈ij. ad ℥j.; creosoti ♏ xl. ad ℥j.; aq. fluvial. ℥xij. M. Ft. lot.

The acetate of lead and the creosote form a uniform mixture, and there is no separation of the latter ingredient. A piece of lint soaked in the lotion, and applied to the ulcer twice or three times a-day, is my mode of applying it. The whole is covered by an oiled silk.—*Med. Times and Gazette, May* 3, 1856, *p.* 443.

115.—*On the Treatment of Chronic Sinuses by strong Nitric Acid.* By F. C. SKEY, Esq., F.R.S.—Whenever inflammation, or even redness, has attended them, the application has generally failed; but the large majority of these canals are not inflammatory, but chronic.

The mode of applying the escharotic is by means of a fine glass tube of length sufficient to reach the full extent of the sinus. At one end of the tube is a small glass bulb. The air is sufficiently exhausted by the hand, when warm, to draw up sufficient acid to fill the tube, and partly so the bulb. The instrument, thus armed, is passed into the sinus, and the acid discharged, either by the hand, or by the aid of a lucifer match, while the tube is slowly withdrawn, pouring out its contents along the entire track. I have by such means succeeded in getting rid of several old sinuses that have given me a good deal of trouble. The glass instrument I have described is not new to this operation. I am not the discoverer, but I can report favourably of its utility.—*Lancet, Jan.* 26, 1856, *p.* 88.

SYPHILITIC DISEASES.

116.—ON THE PLURALITY OF POISONS IN SYPHILITIC DISEASES.

By F. C. SKEY, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

[Syphilis is among the more common diseases met with in every-day practice. There is, perhaps, no disease which is so critical in its nature, or which has been so much under surgical observation, and which is so little understood; for all practical purposes, we may divide syphilitic diseases in the best manner into three forms:—1st, common gonorrhœa; 2nd, simple ulceration, without induration; 3rd, ulceration, with induration.]

The commonly received opinion, as regards primary sores, is, that a special or particular sore in a woman produces the same special or particular sore in the man. Now, I think this quite fallacious; but I wish to go by clinical facts. You have all read—or if you have not, I advise you to read—Mr. Evans' little work on

syphilis; he was in the army about 1815 or 1816. It is a most invaluable little *brochure*. He says that in France he saw 200 women (all the women "on the town," in fact), examined by the police, but not one was diseased; in fact, every woman "on the town" was obliged to be examined every month. Yet at that very time, in the same garrison, 150 of his soldiers, who could not but have received the disease from these very women, were in hospital with every variety of syphilitic malady. This, and some other analogous facts, made a great impression on him at the time: and the idea dawned on the mind also of Mr. Abernethy a little after. Now, I must tell you that Mr. Abernethy was an idolater of John Hunter, and John Hunter was the lion of those times. Mr. Abernethy wrote a book on the subject, but he "fought shy," as they would say, of a great truth lying in his road, in his abject veneration of Hunter!

Now, Mr. Abernethy tells us a case of the following kind. A gentleman, after intercourse, contracted a particular crop of sores; he had intercourse again and again; always the same sores; but his wife had no sores. Now, where did these sores come from? Then, you know the case of the Spanish dancer at Lisbon, who infected so many of the officers, yet was in excellent health herself. I may appear heterodox, but I believe that nineteen-twentieths of the sores in men are self-generated in their own constitution. All such cases as these, and dozens of others I could cite, corroborate that opinion. A medical student in this hospital, the son of a clergyman, living in a retired part of the country, came to me some years ago, complaining of most marked gonorrhœa, with ardor urinæ, &c. Now I regret these stories, but I take them only in their medical bearing. I do not wish you to imitate him. He had unexpectedly got the better of a farmer's daughter—in short, seduced her; she was perfectly healthy at the time—a pure virgin—for I examined her also. Now he had most terrible gonorrhœa with swelled testes, ardor urinæ, &c.: the whole thing arose from the young woman having been menstruating at the time. You should be always on your guard in giving opinions in private families in such cases as this. Do not forget them. Well, I was consulted, now some ten years ago, by another patient, in the upper walks of life, but of most dissipated habits. I am sorry to tell this case also, but it is highly instructive in a pathological point of view. He had first a simple excoriation, after a seduction of the same kind, which required little or nothing in the form of treatment; he went on very well for a few days, but suddenly he came with the parts in a state of high inflammation; the sore sloughed and sloughed again; he was covered from head to foot with eruption. Yet I know that his wife, and the woman who gave him this sore, were perfectly free from disease. He was now from under my care for some time, and got three courses of mercury for these phagedenic sores; but at the end of five months, he came back to me, when I learned what I now tell you. Now where did he get that poison? I believed then, and I am sure of it now, that he made it in his own system. The woman in each case—one, I am sorry to say, moving in one of the highest circles of our London society—afforded simply some menstruous or other secretion, a *tertium quid*, I would say, to the local abrasion first formed, and to something in the man's constitution, and then we had this singular chain of consequences. Mercury may have done harm also. You will meet every year in practice cases somewhat of this kind, so you should be prepared for them. I see them every day in private and hospital practice. In fact, the 150 soldiers under Mr. Evans with bad chancres, and the 200 women of the town perfectly healthy, are now no longer a puzzle. I should rather feel astonished if all these men, on marching through this town, had got precisely the same disease.

Next, of the nature of syphilis in the female, we have yet to learn a great deal. It is true we have now speculum men, who localise ulcers for us about the female genital organs. At the west end of the town, we are told of these speculum performances on old and young; but all we need to say of them is, there is a great deal of fancy, a great deal of the speculum, and a great deal of money made, and that serves all purposes.

I would rather invite your attention to the question—Why has a man a specific sore at all? Why should that fatal pimple or ulcer be formed on the glans, more than any other part of the body, if the disease be a poison in the blood? Mind, I *do not* deny that a woman with gonorrhœa may give gonorrhœa to a man. I have *no facts* to bear out that. I only contend for this position; that a woman *without*

gonorrhœa, may do this mischief, and that many of the phenomena of syphilis are self-generated in the man, and about forty-nine in fifty only require local treatment, and no mercury.

Now I come to the doctrine of the plurality of poisons in syphilis, regarding which so much has been written. If I can show you a sore which almost invariably produces one set of secondary symptoms, and another sore another; if I can predicate vesicles, pustules, psoriasis, lepra, &c., (for there are six of them) from one primary sore: and if I can foretell only the last (lepra) from another; if I can show you a sore only ancillary to another, and a third state of things, in producing certain phenomena, you will say, surely we have here a plurality of poisons. Well, we have a plurality of poisons; but I believe it depends on the constitution of the man who is the subject of the primary sore rather than on a plurality of poisons in the woman conveyed by direct infection. There is no mixing up of these different forms of syphilis. I believe with Mr. Carmichael, of Dublin, that there are secondary sores, pathognomic of the primary sores. We have at least three of these.

I come now to speak of Mr. Hunter, the great "lion" of our profession as regards this subject; a great lion, if you wish; but, in my humble judgment, his book on the venereal disease has done an infinite deal of misehief, and yet it is a great book.

You are all, no doubt, familiar with the Hunterian chancre, of medical essays and journals; we need not describe that. Well, it is curious, Hunter never in his life described this chancre at all. You may search his book from cover to cover, and not find it. It is positively ridiculous, the absurdity and confusion reigning in the schools about this Hunterian chancre. What he speaks of—in rather a cursory way, too—is an excavated ulcer of the tonsil; and this excavated ulcer of the tonsil, some ingenious gentleman has placed on the penis, and it has been copied from one essayist to another. Did you ever see an excavated ulcer on the penis, with induration, cut out with a gouge, as it is said, and with hardened base? You may, perhaps, have come across it, but I must say I never did. Mr. Hunter also treated all his sores by mercury: now the discrepancy is this: How often do we see even indurated sores? It is a most rare occurrence; but as to Hunterian chancre, I would walk twenty miles to see one. I don't know any greater curiosity; in fact, I am lead to the conviction that Evans and Carmichael are right, Hunter wrong; or there is another horn of the dilemma—that the disease has changed; but before you believe this, look for yourselves and do not mind what is said of Hunterian chancre.

Not long ago, a good old sound practitioner was going through St. Bartholomew's; he was aware of my heresies, but he stopped me up-stairs (after going through all the wards) at one special case. "That I call a Hunterian chancre," he exclaimed. "The deuce you do," I replied. "Oh yes," he continued, looking very sapient, "mark the induration; we shall have the gouging out by-and-bye." Well, I offered a bad sort of argument, perhaps, but I said, "I'll bet you any large sum at my command—like a halfcrown to a half-penny—that I'll cure that sore without mercury." I treated it without mercury, and cured it. Now, I would advise you not to mistake *thickening* for induration; the latter is as hard as cartilage; there is no chronic sore, in fact, that does not keep up a certain amount of thickening around it; but this is not "induration." The true ulcer with induration, occurring about two in one hundred of all sores, requires mercury; the ulcer with simple thickening requires no mercury. I cured the man without the mercury. I believe I never settled the halfpenny won by the bet.

Now, if we further subdivide our subject, I would say, next, there are at least three different venereal sores. Mr. Hunter says mercury is the cure for all. Is mercury of no harm? In almost ninety-nine cases out of one hundred, I believe it is; and I am sure mercury is not a cure at all for some other sores. I just said there are three different varieties of ulcer, one, for want of a better name (a rose by any other name, you know, &c.) we may call with Evans, *venerola vulgaris*. You will meet this sore in your practice three times out of four of all sores; here mercury is quite inadmissible. The second sore is the phagedenic sore; here mercury is positively injurious. The third variety of sore is the true syphilitic, dusky, cartilaginous patch, indurated, but without that gouging or hollowing out, ten-

dered classic in the elder libraries; mercury is necessary for this sore; but it only occurs in practice about once in every forty sores. You see, then, we have one sore three out of four times—mercury inadmissible; another sore something less than once in four times—mercury positively injurious; and a third sore once in forty times—mercury useful.

I had the pleasure of going round the hospital, some time back, with M. Ricord, of Paris. He quite and entirely coincided with my views, except that he gave four classes of sores. But the difference is scarcely worth dwelling upon. He is perhaps now one of our best authorities on the subject.

Let me say a few words now on mercury. I do not think mercury is an antidote to syphilis; it rather produces a change in the constitution, *pro hâc vice*, as one might say—a temporary change in the system, which renders the latter unfavourable to the spread or production of the syphilitic disease. I do not think it a good plan to "push mercury," as it is called, when it seems to have little or no effect; I should rather say, intermit the use of it. The system, you may be sure, has got satiated, as one might say, or blunted to its influence; or the sore does not want it. Do not push it, but stop it for a few days, after which a new action will have been set up by the cessation of the mineral; and you may resume it with far better chance of its making a proper impression. Mercury has a great deal to do with the prevalence of rheumatism of late years in old and young. One dosing of mercury, to salivation, you may rest satisfied, is enough, and often more than enough, for a syphilitic patient; for I have little doubt it will last him for every day of his natural life. That mercury, as laid down by John Hunter, is the remedy for all venereal sores, I do not at all believe; indeed, this maxim is to me only like other popular fallacies of later years, a mistake, or in more recognised terms, as you will also find it to be, a "a mockery, a delusion, and a snare."—*Association Medical Journal, March* 15, 1856, *p.* 211.

117.—*Tincture of Iodine in Bubo.*—M. Joliclerc states, as the result of much observation, that tincture of iodine is the best application in bubo, preventing or dissipating fluctuation, and facilitating healing if the bubo be already open. He applies it by gentle friction, so as to avoid vesication.—*Med. Times and Gazette, Oct.* 18, 1855, *p.* 374.

118.—*Chlorate of Potash in Ptyalism.*—In two cases of severe salivation from mercury, recently under his care at the Metropolitan Free Hospital, Mr. Hutchinson has employed the chlorate of potash, administered internally. In each a rapid cure was effected. The first case was that of a prostitute, aged 19, who, suffering from primary syphilis, had been ordered five grains of blue pill, and a quarter of a grain of opium, twice a-day. After taking nine of these pills, profuse and most threatening ptyalism set in. The lips, cheeks, and gums, became much swollen, the breath was fœtid, and there were large ulcerated surfaces on the inside of both cheeks. She could not eat, and the pain kept her awake at night. The original sore had nearly healed. Fifteen grains of chlorate of potash, thrice daily, in an ounce of water, were ordered, no other treatment whatever being adopted. On the next day there was marked improvement; on the third day all fœtor had disappeared, and the ulcers were nearly healed; at the end of a week she could eat crusts, and the mouth was, in every respect, perfectly well. In the second case the disease was in a milder form, but the benefit was not less marked. —*Med. Times and Gazette, Nov.* 10, 1855, *p.* 471.

119.—ON THE MODERN TREATMENT OF GONORRHŒA IN PARIS AS COMPARED WITH THAT IN LONDON.

By William Acton, Esq., formerly Externe to the Lock Hospital of Paris. (From Notes lately taken in the French Hospitals.)

[Our knowledge of the causes, nature, and treatment of these diseases has now

ceased to be empirical, since the attention of the profession has been drawn particularly to them.]

Amongst the out-patients M. Ricord employs cubebs in powder, which he gives in large doses, but in private practice he usually prescribes copaiba capsules, together with his favourite injection, consisting of ten grains of the subnitrate of bismuth to six ounces of water.

Private practice in London offers great opportunities for the treatment of this complaint, and I find when the acute inflammatory stage of gonorrhœa has passed, or before it has gained ground, few cases fail to be immediately benefited by taking capsules together with a lead injection. I still, however, continue to lay great stress on the necessity of showing patients how to employ an injection; but as I have, in my treatise on these complaints, dwelt at great length on this subject, it is superfluous to recapitulate my observations. The modern improvements consist in carefully investigating the cases that do not immediately improve under the treatment spoken of above. If the patient be desired to pass urine in a large test-glass, the urine will be found to deposit, on cooling, more or less of a thick, tenacious, jelly-like mucus. In some cases this is easily shaken up, and mixes for a moment with the urine. In more severe cases the deposit is tenacious, or holds together at the bottom of the glass. In addition to these signs, which to the practical surgeon are of great importance, we not unfrequently find pain in passing urine, as well as a frequency in doing so. This pain is occasionally referred to the neck of the bladder, end of the penis, or may be felt in the perineum. In other instances the patient complains that there is a heaviness in the perineum, and some uneasiness along the spermatic cord. Pain, however, is not necessarily present. I am at the present moment attending a gentleman from the country, who had for three months been taking capsules and employing nitrate of silver injections without success. Suspecting the affection of the neck of the bladder, I requested him to pass urine, which, even before cooling, showed an appearance similar to what is often witnessed—viz.: at passing it is not clear; in a few minutes we notice a cloud suspended for the moment in the clear transparent fluid. As the fluid cools, this falls to the bottom, and in the instance cited formed a quivering, jelly-like body, with a little pus on the surface, which is readily mixed with the urine on slight motion; not so the mucus. In other instances, where there is less secretion from the bladder, the pus is entangled in the mucus, and we see it suspended in the jelly-like mass a little way from the bottom.

The occurrence of any of the symptoms alluded to above during the treatment of gonorrhœa, should induce a surgeon to test the urine, and examine it carefully; for, as a general rule, it would be well to lay aside injections and copaiba, as in this stage both are worse than useless. The complaint has become complicated by irritation of the neck of the bladder, or prostate, and unless timely treatment be employed, the patient will suffer from some subacute affection of the bladder, which it will be difficult to cure. Two faults, equally great, may be committed at this stage of the complaint; if feeble treatment be prescribed, the disease goes on unchecked; if nitrate of silver be employed, and active treatment put in force, acute symptoms set in, and the patient is liable to affections of the testicles, or great irritation of the bladder.

I am constantly meeting with instances in which (to a minor degree, it is true) gonorrhœa is allowed to run on, and the patient's stomach becomes enfeebled by large and long-continued doses of copaiba, without any amendment of the discharge. Let me advise the surgeon, in all such cases, to lay aside the oil, and examine the urine, when he will find it in the condition I speak of. Under these circumstances, copaiba appears to have no action whatever, whereas the turpentines have, particularly the extract of the spruce fir,—an infusion of the young shoots is to be preferred; but as in London we find a difficulty in procuring the tops of the branches, I now recommend in all such cases the inspissated extract of the spruce fir, a substance introduced from Norway in small jars, for the purpose of making spruce beer, and which may be procured at most of the Italian warehouses. I formerly gave the spruce drink, but patients complained that it was not easily obtained, and was a flatulent remedy, so now I order it as follows:—

℞ Ess. abietis nigr. (spruce fir) inspiss. 3 ij.; mag. carb. q. suff. M. ft. pil. xxx.; cap. i. vel ij., bis vel ter in die.

Under the influence of this remedy and opium suppositories the mucus in the urine ceases. As soon as this occurs, the spruce may be laid aside as well as the suppositories.

Formerly I was in the habit of prescribing opiate enemata; but it is often difficult to induce patients to undertake their administration, and the suppository is preferred. In private practice, the young surgeon will find that the feelings of the patient may be studied as far as is compatible with reason; and this reminds me of another hint, which may not be thrown away upon the novice who wishes to succeed. I allude to the vehicle in which the opium is conveyed. I was in the habit of using Spanish soap until complaints were made that it was difficult to introduce the suppository from the pill becoming soft. I therefore prescribe it now as follows, with the butter of the cacao-nut:—

℞ Pulv. opii gr. i.; buty. cacaonis, gr. x. M. ft. suppositorium; Hac nocte utend.

There are contrivances for passing soft suppositories; but patients dislike them, and they are difficult to be manipulated, and I find if the pill is firm it can be readily passed up the anus.—*Lancet*, *Dec.* 22, 1856, *p.* 599.

120.—*Wood Oil a Substitute for Copaiba.*—Mr. D. Hanbury has published in the 'Pharmaceutical Journal' for January, 1856, an interesting account of a liquid recently imported in considerable quantity from Moulmein in Burmah, and offered for sale in London as copaiba, but long known in India, where it is commonly sold in the bazaars, under the name of wood oil, or *Gurjun Balsam*. It is obtained from a tree of immense size, *Dipterocarpus turbinatus*, which is said to yield so much as forty gallons in a season, from incisions made in the stem; the flow of the oil being accelerated by applying heat. Its appearance closely resembles copaiba, of unusually dark brown colour; its consistence is somewhat greater than that of olive oil, sp. gr. ·964; its odour and taste, perhaps, hardly so strong as that of genuine balsam; and it almost entirely dissolves in two parts of alcohol of sp. gr. ·796; but its most curious property is, that when heated in a corked phial to about 266 deg. F., it becomes slightly turbid, and so gelatinous that the phial may be inverted, even whilst hot, without its contents being displaced; and on cooling, the solidification is still more complete. Gentle warmth and agitation restore to a great degree its fluidity, but solidification is again produced by reheating to 266 deg. Copaiba displays no such phenomena. With regard to its medicinal properties, there appears to be no doubt, from experiments made by Dr. O'Shaughnessy, and confirmed by other practitioners in India, that the oil is nearly equally efficient with copaiba, in the treatment of disease. It may be administered in emulsion or in pills, combined with magnesia. Dr. O'Shaughnessey has used the essential oil in doses of from ten to thirty drops.—*Dub. Hospital Gazette*, *Feb.* 1, 1856, *p.* 15.

MIDWIFERY,

AND THE DISEASES OF WOMEN.

121.—ON THE SOURCE OF THE MENSTRUAL DISCHARGE.

By Dr. W. Tyler Smith, Physician Accoucheur to St. Mary's Hospital.

[Divers opinions have been held respecting the exact source of the menstrual flow. It has been referred to the ovaries, the Fallopian tubes, the cavity of the body of the uterus, the os and cervix uteri, and the vagina. All the exact evidence we possess, however, points to the cavity of the body of the uterus as the true source of the discharge. The catamenia may often be seen escaping from the os uteri, in examinations with the speculum; and in cases of procidentia and inversion, the whole process may be watched, as the blood may be seen exuding from the surface of the organ. It may be twelve hours or more after the commencement of the flow before it appears externally, and likewise it may continue to flow externally after it has disappeared from the os uteri.]

Within the last two years I have had opportunities of examining three uteri taken from women who had died during the catamenial flow. In each of them I found the mucous membrane of the body of the uterus either in a state of dissolution or entirely wanting. In one case, that of a woman previously in good health, who died suddenly from a fit of apoplexy while menstruating, and whose uterus was kindly sent to me by Mr. Filliter, of the Marylebone Infirmary, the mucous membrane was altogether gone. At the upper part of the cervix uteri the break in the mucous membrane was very apparent. In the cervical canal the mucous membrane was perfect; but at the os uteri internum, it ceased as abruptly as though it had been dissected away with a knife above this point. Blood was oozing at numerous points from broken vessels in the sub-mucous tissue. I had the assistance of Dr. Handfield Jones in examining this uterus with the microscope, and we could find no traces of the epithelium or of the utricular glands. The surface of the cavity of the body of the uterus was exactly similar to that which may be seen after abortions, in which the decidua, or in other words the developed mucous membrane, has been discharged. The sub-mucous surface was a pulpy mass, in which epithelium, the ends of vessels, broken tubes, blood globules, and mucous corpuscles were all that could be distinguished. I compared this uterus with that of a woman who had died after an abortion at the third month, and the appearances in the two cases were precisely similar.

The state of the uterine mucous membrane during menstruation has occupied many observers. It has generally been described as thicker and more swollen during the catamenia than at other times. It should be mentioned, however, that descriptions of the uterus a few days before or after the menstrual flow can have little bearing upon the subject, and it is a rare occurrence to get the uterus of a woman who has died in the middle of a healthy menstruation. No safe conclusions can be drawn from the cases in which women suffering from severe disease have a sanguineous discharge from the uterus at the time of death. Professor Simpson, in 1846, in his paper on the expulsion of the entire mucous membrane in certain cases of Dysmenorrhœa, drew a comparison between ordinary menstruation and the process of digestion, in which the epithelial layer is shed and removed after every meal. M. Pouchet has supposed that a decidual membrane is formed during each catamenial period, and discharged in the shape of an albuminous plug ten or twelve days after the cessation of the flow. Kolliker states that the mucous membrane becomes thickened during menstruation, the blood escaping from the ruptured superficial capillaries, and that the epithelium of the cavity of the body is in great part thrown off; but he considers it as abnormal if the whole or part of the entire mucous membrane should be detached. Muller compares the change in the mucous membrane of the uterus during menstruation to moulting, attended, per-

haps, by the formation of a new epithelium. A case recorded by Dr. Janser has been often quoted. It was that of a girl murdered four days after menstruation. He describes the mucous membrane as somewhat thickened, and easily lifted from the surface by the handle of the scalpel. It was composed of the utricular glands, arranged perpendicularly, side by side, and covered by cylinder epithelium. This observer concludes that during menstruation the mucous membrane of the uterus presents the same characters as in the early part of gestation. Such cases, however, really prove nothing with respect to the condition of the mucous membrane during the actual presence of menstruation. In an organ like the uterus, the most important changes may occur in the space of four or five days.

It appears to me to be in accordance with what I have observed in uteri examined during the menstrual period, the facts connected with membranous dysmenorrhœa, and the detachment of the decidua in abortion and parturition, to suppose that the mucous membrane is in great part or entirely broken up, and its *débris* discharged during each menstruation. The blood is probably exuded during the breaking up of the mucous structure, and the duration of the menstrual period represents the time occupied in this periodical decadence and renewal of the mucous membrane of the body of the uterus.

In cases of membranous dysmenorrhœa we have proof of the exfoliation of the mucous membrane in an entire form, or in detached pieces. This may occur every month for many years, a new mucous membrane being developed after each menstruation. After abortions and after parturition we know that the old mucous membrane is thrown off, and a new one formed. According to the view I have stated, a new mucous membrane is formed every month as part of the process of preparation for the reception of a fecundated ovum; not that the aptitude for the reception and implantation of the ovum is limited to the newly-formed mucous membrane, though it is probably greater at this time than at others. The mucous membrane may become the seat of the changes consequent upon impregnation just before a menstrual period, and in cases where menstruation is suspended. According to my view, the mucous membrane of the uterus becomes excrementitious every month, and is discharged from the cavity of the uterus in a state of disintegration, and the uterus forms a new mucous coat, by a process similar to the reproduction of lost parts.

Such a doctrine may at first sight appear startling, but we have always had a similar condition, during the menstrual period, under our eyes, in cases of vicarious menstruation. In these cases, an ulcer upon any part of the surface of the body may skin over, or assume healthy granulations, during the intervals of menstruation, but on the occurrence of the period, the newly-formed skin gives way, or the healthy granulations slough, and the blood exudes from the surface for several days; after which, the ulcer heals, or puts on a healthy aspect, until the approach of the next catamenial period. I have at the present time a patient with a menstrual ulcer upon the dorsum of the tongue, in whom the sore heals partially or entirely between the periods, but at the catamenial dates the surface gives way, the sore becoming deepened, and exuding blood, while the catamenia are flowing. We have only to consider similar phenomena as occurring to the mucous membrane of the body of the uterus, and we have a reasonable explanation of the mode in which this peculiar function is performed.—*Lancet*, *Feb.* 2, 1856, *p.* 114.

122.—*On the Source of the Blood in Menstruation during Pregnancy.* By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.—The source of the blood in menstruation, or menorrhagia during pregnancy, has often been the subject of discussion. Before the modern views respecting the formation of the decidua, it was difficult or impossible to account for the occurrence of a discharge having a menstrual character from the gravid uterus. How could a sanguineous flow issue from the cavity of the uterus when the whole of the internal surface of the organ was occupied by the decidua? Obstetricians were driven to suppose *that the* discharge must in such cases be poured out from the cervix, the os uteri, or *the vagina.* In accordance with the modern ideas respecting the development of *the mucous* membrane of the uterus into the decidua vera, Dr. Matthews Duncan has

suggested that the menstrual discharge may be secreted from the decidual lining of the gravid uterus in the early months, before the decidua reflexa comes to be in apposition with the decidua vera, in its whole extent. According to the view I have advanced respecting the loss and renovation of the mucous membrane at the menstrual periods, it is not difficult to conceive that in the first part of the pregnancy the lower portion of the decidua vera may become broken down and thrown off with a sanguineous discharge. Probably, in cases of threatened abortion, in which there is a coloured discharge for several days or a more considerable period, without the loss of the ovum, the lower portion of the decidua vera is destroyed and formed anew. In several cases which have occurred to me, of menstruation during pregnancy, I have, however, found them, on examining with the speculum, to be cases of abrasion of the os uteri. In the intervals between the periods the abrasions have secreted pus; but, under the influence of the vascular congestion which occurs at the menstrual dates throughout part or the whole of pregnancy, they exude blood after the manner of a menstrual ulcer. I met in the course of last year, with two cases of this kind.—*Lancet*, *March* 8, 1856, *p.* 251.

123.—ON A NEW TRIVALVE SPECULUM.

By Samuel A. Lane, Esq.

A medical friend and former pupil consulted me respecting a ragged and ill-conditioned ulceration situated within the rectum, about an inch from the verge of the anus; it extended from this point upwards about an inch and a half, having a breadth at its widest part of three-quarters of an inch. I was desirous of destroying the unhealthy surface of the ulcer by the local application of nitric acid, but found the specula in ordinary use so ill-adapted to bring the entire ulcer into view, and to allow of the necessary manipulation, that I applied to Mr. Blaise, of the firm of Philip, Whicker, and Blaise, to construct me an instrument for the purpose. The desiderata in the speculum I required, were, facility of introduction, extensive dilating power within the rectum, associated with as little bulk as possible opposite the grasp of the sphincter; sufficient space at the orifice to introduce the finger, and to apply instruments; simplicity of construction, so as to admit of the speculum being readily used with one hand, while the acid was applied with the other. Mr. Salmon's conical tubular speculum failed to expose the whole of the ulcer, and to give sufficient room for the use of instruments. The three-bladed speculum ani, in which the blades are made to separate from each other in parallel lines by means of a screw, of course dilated the sphincter as much as the interior of the gut, and gave too much pain before sufficient dilatation of the interior of the rectum could be obtained. A small Ricord's bivalve speculum fulfilled some of the requisites sufficiently well, but the mucous membrane fell between the blades to such an extent as to give a very imperfect view of the ulcer, and to render it impossible to use topical applications with any precision; a third blade would have obviated this. Mr. Blaise was accordingly requested to construct an instrument with three divergent blades, on the principle of M. Ricord's bivalve speculum, opening in the same simple way by pressure on the handle, but acting on three blades instead of two.

The accompanying woodcuts will sufficiently explain the construction of the instrument. It consists of three blades, closed by springs, and opened by pressure on the handles. The handles form an obtuse angle with the blades, so as not to obstruct the view, or interfere with the introduction of instruments. The third blade is attached to the body of the instrument by a hinge, and is kept approximated to the other blades by means of a slight spring; it is made to open by two projecting levers or pegs, connected with the handles. The blades, as they open, diverge from each other, moving extensively at their distal, but only slightly at their proximal extremities.

My own instrument is without the rack, and the edges of the upper two blades are bevelled off at their proximal extremities for about an inch, in order to give greater space for the introduction of instruments.

This speculum thoroughly answered my expectations, and I need hardly say

Fig. 1.

Fig. 1 represents a profile view of the instrument in its closed state. It shows well the angle formed by the handle and blades.

Fig 2.

In Fig. 2 the instrument is also seen in profile, and about half open. A rack is represented at the extremities of the handles, by means of which the instrument is kept open to the extent required.

Fig 3.

Fig. 3 shows a front view of the instrument fully opened and kept so by the rack.

would be suitable for the examination of any passage, of which the interior cavity is much wider than the orifice leading to it, such as the rectum and vagina.—*Lancet*, *Dec.* 15, 1855, *p.* 575.

124.—ON INFLAMMATION OF THE OS AND CERVIX UTERI.

By Dr. Rigby

[Besides arising from general unhealthy conditions of the system, it may be induced by causes of a mere local nature, as exposure, violent horse exercise, improper irritation of the part, but especially by the too frequent application of caustic to the os uteri, with such short intervals that the eschar produced by one application could not have healed before the next was made, and thus continued for such a length of time as to produce the most serious mischief, both local and constitutional.]

This form of inflammation of the os and cervix presents features which distinguish it from the ordinary species I have been describing. It would, perhaps, be correct to call it a highly irritable condition of the uterus (which not only involves the ovaries, but frequently implicates the spinal cord to a serious extent), were it not for the actual alteration of structure and permanent injury of the part which has suffered more immediately from this treatment.

The patient complains of constant pain in the uterine region, but generally more behind the symphysis pubis than is usually the case in ordinary inflammation of the cervix, extending from hip to hip, and in aggravated cases darting up the spine with neuralgic severity. It is increased by standing or by any exercise *whatever*. Sitting down upon a hard seat, or the passage down the rectum of *solid* fæces, produces great suffering, inasmuch as when once the pain is brought

on, it will continue severely for some time after. The moment she assumes the erect posture she has a sensation of weight, bearing down, and burning heat in the pelvis, which are quickly followed by the pain itself.

The catamenial periods usually follow each other too quickly; are almost always very profuse, and invariably attended with great suffering. If the ovaries are involved, the symptoms of ovarian dysmenorrhœa will also be present. She has a constant ichorous watery discharge, which is sometimes very profuse. The bowels are unhealthy; the urine thick; the tongue pale, dry, and rough, with red papillæ; the face is sallow and wan; the spirits depressed; the pulse feeble and very irritable; and she has lost strength and flesh.

On examination, per vaginam, this canal is found soaked in the thin, watery discharge already mentioned. On gently touching the os and cervix uteri with the finger, the patient feels as if the parts were raw, from the aggravated sensibility which now exists in them; firmer pressure with the finger brings on the neuralgic pain already described. The os uteri is usually swollen, uneven, and knobby—it is frequently dragged forwards, or to one side, without any corresponding displacement of the organ itself. Whether this alteration of shape is owing to cicatrization in the part itself, and surrounding vagina; or whether it depends on different portions being affected with different degrees of induration, it is not easy to determine; at any rate, the cervix usually has a strong degree of hardness, and the uterus above it feels large, hard, and very tender to the touch.

Seen through the speculum, the os uteri does not present the dark red tinge, more or less mottled with patches of a brighter colour, as in cases of ordinary inflammation, but it has a pale ashy hue much injected with vessels, just as is occasionally seen in the irritable throat and tonsils of an unhealthy person who has been suffering from repeated attacks of quinsy.

The discharge is evidently uterine, and is constantly oozing from the os uteri in considerable quantities. If the uterine sound be passed, it generally penetrates half an inch, or even a whole inch, beyond the usual distance, showing that the uterine cavity is enlarged; and intense pain is produced the instant it touches the internal surface of the uterus, indicating great irritability of that organ, and probably inflammation of its lining membrane.

The treatment of this affection will necessarily differ a good deal from the ordinary forms of inflammation of the os and cervix; the indications, it is true, will to a certain extent be the same, but the local as well as the general condition of the patient is very different. The inflammation of the os and cervix in these cases is seldom of such a nature as to require the application of leeches to the part itself, and the extreme irritation which they not unfrequently produce contra-indicates any local applications but those of a soothing character; while the enfeebled state of the patient's health renders any depletion very questionable.

The general treatment is by no means so simple or so easy as in the other case. The health has been so much deranged by the long-continued effects of severe uterine irritation, and the strength so broken down by frequent attacks of menorrhagia, and the profuse leucorrhœa during the intervals, that it is difficult to adopt any distinct line of treatment at first starting, beyond the attempt to regulate the liver and bowels, by the mildest remedies, and soothe the irritable system by gentle sedatives.

A course of taraxacum, with decoct. sarzæ comp. and liq. calcis, is valuable in the early stages of treatment, as it obviates the necessity of mercurial alteratives, which are usually contra-indicated by the mucous irritation of the intestinal canal. It is of great importance to allay this condition as quickly as possible, not only because we thereby remove a fruitful source of uterine irritation, but because it also enables us to employ remedies which we could not otherwise do. When this has been arrested, we may generally pass at once to the use of mineral acids and tonics, and, if necessary, these will pave the way to a course of cod-liver oil. If the season of the year permit, a residence for some months at the sea-side will be most desirable. The patient should use sea-water in her morning ablutions, and if her health be sufficiently improved, and the weather warm enough, she may bathe in the sea with advantage.

The local treatment, as I have before stated, must be essentially of a soothing character. Liq. plumbi diacet. in decoct. papaveris forms one of the best injections

where there is any amount of heat, swelling, or discharge; in other cases, the plain poppy decoction appears to be the only local application which will give relief. As it is desirable she should retain injections of this sort for fifteen or twenty minutes, she ought to lie upon her back, with her heels drawn up to the nates, and thus give the vagina such a direction that the injection will remain in it as long as she preserves this position. The suppositories of diacetate of lead and extract of conium are also very valuable in these cases, and by being in a more concentrated form, and capable of being retained much longer, produce a much greater effect. The warm hip-bath is very useful, and with some patients appears to be the only thing which gives relief. If, however, the weather be mild, the sooner she can gradually come to the use of cold water the better; and she may always be looked upon as having made good progress when, during her residence at the sea-side, she is able to bear cold sponging with sea-water, and bathing in the open sea. For those who are able to enjoy these advantages, the salt towel which I have before recommended will be an excellent adjunct to the cold sponging. But it will be needless to enter into further details; they will vary more or less with every patient, or with the same patient at different times, and will be naturally suggested by the peculiar features, &c., of each case. The indications of treatment are to allay irritation and restore tone, but the treatment itself must necessarily be modified by the circumstances of each particular case.—*Med. Times and Gazette, Jan.* 26, *p.* 83.

125.—THE GRAVID UTERUS.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.

Formerly, everything was vague respecting the existence and arrangement of the muscular fibres of the uterus. The possession, even, of muscular fibres by the human uterus was argued because they could be seen in the lower animals, and because, from the functions of the uterus, they were necessarily believed to exist in this organ, rather than because they could be satisfactorily made out in dissections. In the magnificent plates of William Hunter, the external surface of the uterus presents no definite muscular arrangement. This great anatomist could find nothing but "irregularity and confusion," except upon the inner surface of the organ, where he observed the fasciculi to have in some degree the regular arrangement observed in other muscular structures. His description of the internal layer of muscular fibres is perfect even at the present day. He gives an account of the circular fasciculi surrounding the body of the uterus, and the two concentric circular planes of fibres which surround the orifices of the Fallopian tubes, and gradually blend with the circular fibres of the body of the organ. William Hunter saw the analogy between these concentric rings—the orbiculares muscles, as he terms them, of the fundus uteri and Fallopian tubes, and the circular muscles found in the two horns of the uterus in animals possessing the uterus bicornua. His words are, "the better to conceive this arrangement of the internal muscular fibres, we may suppose each corner of the fundus uteri, where the tube is inserted, to be stretched or drawn out, so as to make two horns, or a bifid uterus, as in the quadruped; then, if we understand the inner fibres to be circular in every part of the uterus, we clearly understand how they will be circular in the human uterus upon its body, and likewise circular and concentric at each corner of the fundus." Before this time, Ruysch had described the fundus uteri as possessing a single circular muscle only. Sir Charles Bell carried our knowledge of this subject a step further, and described the muscular fibres diverging from the round ligaments to spread over the whole of the organ, and he considered these ligaments as in some respects the tendons of the external fibres of the uterus. His conclusion was, that the circular fibres prevailed towards the fundus, and that the longitudinal fibres were most apparent towards the os and cervix.

According to the recent descriptions of Kolliker and other minute anatomists, who have combined the use of the scalpel and the microscope in their investigations, the gravid uterus possesses three layers of muscular fibres, all of them being of a paler colour than is found generally in other muscles. These three layers can

be made out with tolerable distinctness, but not so clearly as we can make out the circular and longitudinal layers of the Fallopian tube or intestine. The internal stratum, or the inner layer of William Hunter, is thin, and composed of delicate circular and transverse fibres, the circular fibres being found chiefly in the middle of the body of the uterus, around the Fallopian tubes, and at the os uteri, in which latter position they form an imperfect sphincter. The middle layer is thick and strong, consisting of flat bundles of fibres, running in different directions, interlacing with each other, and surrounding the vessels of the uterus. These bundles of fibres are more loosely arranged than those of the internal layer, giving the middle portion of the uterine parietes a spongy appearance. The stratum is strongest at the fundus uteri, where it seems to consist of several layers. The external layer consists of transverse and longitudinal fibres, forming a thin stratum, immediately beneath, and intimately connected with, the peritoneal covering of the uterus. The longitudinal fibres are arranged chiefly upon the anterior and posterior surfaces of the organ, and extend from the fundus to the lower part of the cervix. The transverse fibres of this layer surround, or nearly so, the organ, and fibres derived from it are continued, not only into the round ligaments, but into the broad and ovarian ligaments, so as, in effect, to connect the fibrous structure of the uterus with the fibrous stroma of the ovaria.

Sir Charles Bell pointed out a fact which has been confirmed by subsequent observers, namely, that in all parts of the uterus muscular fibres are found to surround the blood-vessels, and that this is especially the case with the open vessels upon the surface from which the placenta has been detached. William Hunter had observed that at the site of the placental attachment the inner layer of muscular fibres lost its regularity, and was found to be interlacing amongst the blood-vessels. The bearing of this arrangement upon the arrest of hemorrhage after the placenta has been detached is obvious. Sir Charles Bell found that when the muscular fibres were contracted the mouths of the vessels were closed, and *vice versâ*.—*Lancet*, *April* 19, 1856, *p.* 19.

126.—ON SOME DISORDERS OF PREGNANCY.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital.

[Of the disorders depending upon sympathetic irritation, excessive nausea and vomiting are amongst the most troublesome to which the pregnant woman is liable. It may be bearable and only occasional, principally in the morning; or it may be very serious and constant, so much so, as to threaten the life of the patient by exhaustion, convulsions, or rupture of some blood-vessel.]

The first thing to be attended to, as regards treatment in the vomiting of pregnancy, is to attempt to get the secretions, particularly those of the stomach and bowels, in as healthy a state as possible. One of the most old-fashioned and serviceable remedies is the infusion of calumba with soda. The calumba and soda, with from three to five drop doses of the dilute hydrocyanic acid, three times a-day, is a very useful combination. A grateful and sedative tonic is also made by giving citric acid with the calumba and soda, so as to form an effervescing draught. Cases are met with in which vomiting affords great relief, by getting rid of vicious gastric secretions, and contributing to restore the stomach to a healthy state; such patients should be puked occasionally with warm water, camomile tea, or a mustard emetic. In some patients, the stomach retains food after taking moderate doses of opium and morphia, and perhaps the solution of the bimeconate of morphia is one of the best forms in which an opiate can be given. Salicine, in doses of three to five grains, three times a-day, is a valuable medicine, which was first mentioned to me by a medical practitioner. It allays sickness, and promotes appetite and digestion. Kreasote, in one or two drop doses, made into pills with crumbs of bread, is well known as an efficient remedy in this affection. Professor Simpson strongly recommends the salts of cerium, particularly the nitrate of cerium, in doses of one to two grains in water. Dr. Simpson has also used the vapour of laudanum as an inhalation with good effect. Where there is tenderness of the epigastrium, with fever, and an active state of the circulation, a few leeches

may be applied to the pit of the stomach, or a small bleeding from the arm may be practised with good effect. Counter-irritation, in the shape of sinapisms, the turpentine stupe, or blistering, will sometimes afford great relief. In some cases, the stomach is soothed by the application of warm poultices sprinkled with laudanum, or a pledget of lint dipped in laudanum, the epigastrium having first been stimulated by a mustard plaster. The recumbent position, and perfect quiet, is of great use in the worst cases. It is sometimes necessary to treat not only the sickness, but also the marasmus which is the result of excessive vomiting. A daily warm bath is a great comfort to such patients, and in cases of excessive prostration, gelatinous matter may be added to the bath, with a view to the endermic absorption of nutriment. Beef-tea injections, and the inunction of cod-liver oil, or sperm or salad oil, are very useful. I have seen a patient suffering from incessant vomiting, in a state of great anæmia, with œdema of the lower extremities from pure debility, kept up in the latter part of pregnancy mainly, as I believe, by the daily inunction of cod-liver oil over the abdominal surface. When all other means fail, and when the exhaustion of the patient cannot be arrested, the remedy is the emptying of the uterus, and this should never be delayed so long as to put the patient in a state of imminent peril. Nature herself often terminates the distress by spontaneous abortion. It has happened to me to have been twice consulted within a recent period in cases in which the induction of premature labour artificially was so long delayed, that the patient died before abortion could be induced. Paul Dubois has stated that he met with twenty fatal cases in thirteen years. It is a reproach to our art that such cases should occur.

Anorexia, Indigestion, Heartburn, Gastralgia, and Variable Appetite, are caused in certain patients by the reflected irritation of the gravid uterus upon the stomach. Some women never feed so well as when they are pregnant, but in general, the appetite fails somewhat, and particular articles of food are regarded with aversion. A morbid desire for salted matters, acids, or alkalies, is not uncommon. Sometimes there is great loathing of every kind of food, or there is an extravagant desire to eat particular things, amounting to pica. These "longings," as they are termed, should be gratified as far as they reasonably can be. The common tendency of the appetite in pregnancy is to prefer fresh vegetables, fruits, and cooling drinks, and to avoid stimuli of all kinds. In this, the taste of pregnancy accords very well with its requirements. When the appetite is unnatural, the state of the bowels should be carefully regulated, and the patient kept so far as possible from taking things likely to be absolutely hurtful, as convulsions before and during labour are sometimes caused by the habit of indulging in improper and indigestible kinds of food. The remedies serviceable in excessive vomiting are also useful in the gastric disturbances now under consideration. Soda and magnesia are the best antacids in heartburn. In the neuralgic state of the stomach, which occasionally obtains, bismuth, hydrocyanic acid, kreasote, or an opiate plaster to the epigastrium, are useful. Sometimes small doses of acetic acid, or the mineral acids, will relieve the stomach in a remarkable manner; and when the neuralgia recurs at a particular hour of the day, it is generally relieved by quinine. In certain cases, uterine irritation excites the bowels to increased action, and tenesmus and diarrhœa are the results. In such cases, astringents should be given sparingly, unless the diarrhœa should be so considerable as to produce debility or lead to the risk of abortion. Care should, in the first instance, be taken to render the secretions as healthy as possible, and to avoid articles of diet likely to irritate the bowels. If necessary, the purging should be arrested by an opiate, with compound chalk mixture, bismuth, or gallic acid. When the diarrhœa depends, as it sometimes does, upon fæcal accumulation, or vicious secretions, a brisk purgative is the best remedy.

Facial Neuralgia from uterine irritation is a very common affection of pregnancy. It generally affects the dental nerves, particularly those of the upper jaw. In many subjects, acute caries of the teeth occurs; and in some childbearing women, a tooth or two is lost in each pregnancy. In neuralgia of the face, with or without disease of the teeth, a generous diet is called for, with wine and porter. Quinine and the lighter preparations of iron are very useful in such cases. Cold *and damp*, and residence near a river, or the neighbourhood of any large body of *water, should* be avoided as much as possible. Teeth ought only to be extracted

with caution during pregnancy under such circumstances. The local application of chloroform, kreasote, camphorated spirit, nitric acid saturated with camphor, and other anodynes, scarification, or the application of a leech to the gum, are the best means of alleviating pain.

A painful state of the Mammæ sometimes occurs during pregnancy, but seldom requires anything more than frictions, with an anodyne liniment or warm fomentations. Occasionally, however, acute Mammitis occurs from the irritation of pregnancy, requiring leeching and other active treatment. One of the most remarkable sympathetic disorders of pregnancy is the occurrence of goitre to a slight extent. The treatment of this enlargement of the thyroid is not of much avail during gestation, and the goitre generally disappears after parturition. Allied to this affection is the excessive salivation which occasionally happens in pregnant women, leading to no serious results, and generally requiring no further treatment than the use of an astringent wash to the mouth.

We shall have presently to consider the œdematous states of the lower extremities, depending upon pressure and debility; but there is another form of dropsy incidental to pregnancy, affecting not only the limbs, but the cellular tissue of the body generally: this is the Œdema Gravidarum of the older authors. No other cause than pressure on the vessels was, I believe, known for such a state of things until Dr. Lever pointed out its connexion with albuminuria. Other observers have added to this valuable advance in pathology, and it is now a well recognised fact that pregnant women, especially primipara, are often the subjects of albuminuria, resulting in local and general dropsy, and involving, unless relieved, very grave dangers at the time of parturition. Albuminuria was first pointed out by Dr. Lever and Professor Simpson in 1843, in connexion with puerperal convulsions, but since that date more attention has been paid to this condition at the time of labour than during its early stages in pregnancy. This is a misfortune, inasmuch as little can be done in such cases at the time of parturition, while, if detected early, the disorder can be relieved in the great majority of cases. It has been said that this disorder cannot be arrested during pregnancy; but I have never met with a case that resisted treatment, unless it had been neglected until towards the close of gestation. The cause of albuminuria of pregnancy has been considered to be the pressure of the gravid uterus. It has been found that ligatures applied to the renal veins will produce albuminuria artificially. Its prevalence in first pregnancies, when the abdominal walls are more tense than in multipara; in twin cases; and in subjects affected with dropsy of the amnion; and its rapid disappearance after labour, in most cases, seem to favour this view. Probably pressure on the kidneys is one cause of albuminuria; but I have seen it occur in primiparous women of relaxed habits as early as the fourth or fifth month, where the abdominal walls were flaccid, and no apparent pressure or tension existed. The disease appears to me in such cases to depend upon sympathetic irritation of the kidneys by the gravid uterus, similar with the irritation of the salivary glands, the mammæ, thyroid, &c., and not upon mere pressure. It certainly has not the same tendency to occur in ovarian dropsy; or in large fibrous tumours of the uterus, in which the pressure may be quite as great, and sometimes as rapidly induced, as in pregnancy. According to the researches of M. Blot and Professor Litzman, albuminuria is not a very uncommon affection in pregnancy. M. Blot found it in about twenty per cent. of the women he examined, and Dr. Litzman in a somewhat larger proportion. It is found, as already stated, more frequently in primipara than in multipara. Probably when the albumen is small in quantity, no special symptoms result. When the amount of albumen is excessive, and the disorder has proceeded without check, we have the legs enormously swollen, and the vulva and vagina become so tumid as to render an examination very difficult. There is puffiness of the face and hands, œdema of the abdominal walls, and almost every part of the body pits deeply upon pressure. The patient complains of headache, and sometimes dimness of sight and amaurosis. Lumbar pain is frequently present, and there is general pyrexia. The urine is small in quantity, and nearly solidifies upon the application of heat and nitric acid. It is generally of high specific gravity, loaded with phosphates, frequently alkaline in character, and containing epithelium or fibrinous casts of the tubuli uriniferi. Besides the

loss of albumen, urea is retained in the blood, and appears to have been detected in this fluid as such by Dr. Lever. Other observers have failed to find urea. According to the view of Frerichs and Litzman, urea becomes converted into ammonia, which has been found in the blood and in the secretions of the skin and lungs of albuminurious patients. As the poisoning of the circulation by urea and the loss of the albuminous portion of the blood proceeds, an intense degree of anæmia is induced. It is of great importance to relieve such a state of things before the coming on of labour, as albuminuria predisposes powerfully to convulsions and phrenitis, and, according to my experience, to dangerous hemorrhage during and after labour. The treatment consists in small bleedings where there is distinct lumbar pain and general febrile excitement, or cupping upon the loins, or counter-irritation by sinapisms in the same situation. Warm baths and vapour baths are often very useful in restoring the function of the skin, removing the effused fluid, and disposing the kidneys to act. I have also found the use of diuretics, as the acetate of potash, oil of juniper, and infusion of broom, most useful. Frerichs and Litzman have given benzoic and citric acids, with a view to remove the ammonia from the blood, and it is said with good effect. When there are no signs of renal inflammation or congestion, and the quantity of albumen has diminished, and that of the urine increased, a generous diet and the administration of iron and tonics should be resorted to, in order to repair, as far as possible, the weak condition of the blood which has been produced. The detection and treatment of albuminuria in pregnancy is one of the points of progress deserving the special notice of all engaged in the practice of midwifery. I have no doubt the rate of obstetric mortality may be sensibly diminished by attention to this subject. The urine should invariably be tested for albumen in all cases of œdema of the extremities.

I am not aware that the matter has been observed by obstetric authors, but in some pregnant women the urine, without being albuminous, contains habitually a large quantity of triple phosphates, is of high specific gravity, and has an alkaline reaction during the greater part of pregnancy. The nervous and vascular erethism attendant upon, or produced by, the state of pregnancy, is followed by the same results as other and more marked causes of exhaustion. I have known this phosphatic diathesis to exist in cases in which fatty degeneration of the placenta has occurred in successive pregnancies. In one lady who had given birth to eight dead children at or near the full time, this state of the urine was very marked. The death of the children occurred before the end of gestation from placental disease, and was caused by the separation of the placenta before the occurrence of uterine action, leaving the fœtus to die of asphyxia; or its attachment was so slight that it was separated by the first contractions of the uterus; or the children were born in such a weak condition that they died soon after birth. The treatment in such cases should be that employed in the phosphatic diathesis occurring under other circumstances than pregnancy—namely, the mineral acids, opiates, rest, and a nutritious regimen. Such patients also require, either during or after the completion of pregnancy, preparations of steel, as a marked degree of anæmia is produced by the persistence of the disorder.

Some gravid women experience great distress during pregnancy from the sympathetic irritation of the heart, palpitation occurring upon the slightest exertion or emotional disturbance; in others, the respiration is similarly affected, and attacks of dyspnœa, approaching to asthma, harass the patient. These affections are aggravated as pregnancy proceeds; and the effects of mechanical pressure upon the heart and lungs by the ascent of the diaphragm, and upon the great vessels in the abdomen, become added to those of sympathetic irritation. In such cases an opium or belladonna plaster over the heart, and the use of antispasmodics, such as sulphuric or chloric ether, valerian, musk, and similar remedies, are useful. Every means should also be taken to diminish as far as possible, the effects of mechanical pressure. Cough is very troublesome in some cases. At the commencement of pregnancy, the cough may be spasmodic, and caused by sympathetic irritation of the throat and glottis; and, in the later months, by the upward pressure of the gravid uterus upon the diaphragm and lungs, a condition often accompanied by *pleurodynia*. In the former case, the cough is soothed by opiates and a good diet; *in the latter*, nothing can be done beyond obviating the effects of pressure as much

as possible, by attention to the bowels, and the position of the patient. Such patients, for instance, require to sleep with their heads raised, and very great comfort is often obtained by the use of small air pillows, which can be shifted about with ease by the patient.

Cephalalgia and cerebral irritation are sometimes produced by the irritation of the gravid uterus. They are, however, more frequently the secondary result of some other disorder incident to pregnancy. Thus, headache occurs as a symptom of albuminuria, constipation, anæmia, indigestion, &c. When it is caused directly by the condition of the uterus, it should be relieved by cooling applications, as ice or a spirit lotion, to the head, and a few leeches to the temples, small blisters behind the ears, aperients, &c. When headache is only a symptom of some other condition arising out of pregnancy, the treatment must be modified according to the particular disorder upon which it depends—as, for instance, a purgative in constipation; quinine or iron in anæmia; in albuminuria, the treatment adapted for the relief of this condition, and so forth. Severe headache is a symptom which should always attract the attention of the accoucheur, since we know that it may be the possible forerunner of puerperal convulsions or mania. It occasionally happens that actual mania has been caused by the irritation of pregnancy, and apoplexy, epilepsy, and chorea have been met with. In these severe complications, the only efficient treatment consists in the artificial evacuation of the contents of the uterus.—*Lancet*, *March* 1, 1856, *p.* 221.

127.—TREATMENT OF ABORTION.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital, London.

[The symptoms of abortion are frequent shiverings, irritable condition of the bladder, sanguinolent discharge, and pain. On being called to a case of supposed abortion, an examination should always be made if possible, and our first consideration must be whether or not the ovum can be preserved; all irritations of a reflex character should be removed. If there be much uterine plethora, leeches should be applied to the inside of the thighs, or the perinæum.]

When the nervous excitement predominates, a full opiate is of great service. Opiates in full doses, are also especially called for when there is intermittent uterine pain, or the continued pain of the back and lower part of the body similar to painful menstruation. Dr. Fleetwood Churchill has given the cannabis indica with good effect as an anodyne, and with a view to its restraining sanguineous discharge. In the earliest abortions astringents are very valuable, the loss of blood in such cases very much resembling menorrhagia. The acetate of lead, in combination with opium, the mineral acids, the oxide of silver, alum, gallic acid, are the best remedies of this kind. If the discharge is profuse, iced drinks should be given. Otherwise, the beverages of the patient should be cool, without being absolutely cold, in order to avoid uterine contraction. In the treatment of abortion, it must always be borne in mind, that in diet and medicine any agents which excite contraction of the uterus may arrest hemorrhage for the moment, but with the danger of exciting further separation of the ovum. We must be careful, therefore, not to excite any powerful uterine action. The local application of cold to the vulva, and the introduction of sponge or pieces of lint, dipped in water, into the vagina, is very useful, within certain limits; but it must be remembered that excessive cold excites uterine contractions, and so, also, does the sponge or linen plug, if it should be large enough to irritate the vagina mechanically. Perhaps the most important of all the means at our disposal for the relief of abortion is rest in the horizontal position. The patient should be kept in bed in a cool apartment, lightly covered with clothes, so long as any coloured discharge continues, and for some days afterwards she should be kept upon a couch, and not allowed to assume the upright position or to walk. When the uterus is in the irritable and congested condition which accompanies abortion, the standing posture, or considerable movement of any kind, greatly adds to the probabilities of abortion. The mind of the patient should be kept as quiet as possible, and all exciting or alarming intelligence withheld from her. The bowels should be kept open, if necessary, with the mildest laxatives. I prefer the senna confection, with a little bitartrate of potash,

as an aperient. Castor oil, as I believe, irritates the uterus and mammæ, and should not be given. When the threatening of abortion has occurred at a catamenial date, every precaution should be taken, as the next monthly period comes round, in the way of avoiding irritation, and preserving quiet of body and mind. Every pregnant woman should be told to take note of the catamenial dates throughout pregnancy, and observe greater care than usual at these times, particularly if she has been the subject of abortion. The attempts to prevent abortion should be carried out perseveringly, and it sometimes happens that women suffer from the symptoms of abortion a considerable time, slight sanguineous discharges lasting for weeks, and yet, with continual care, they go on till their full term. It sometimes happens that the bleeding is very profuse, and the os uteri so closed that the finger could not possibly be introduced into the uterus. All the more powerful astringents may have been tried in vain. In such cases the vagina must be plugged firmly with lint or sponge. This arrests the bleeding almost invariably, and tends to promote coagulation at the mouths of the bleeding vessels. If, however, it is necessary to continue the plugging for any length of time, the uterus becomes excited by the mechanical irritation, and throws off its contents. Sometimes the loss of blood is so great as to require the free administration of brandy, ammonia, and other stimulants. As abortions frequently spread over a considerable time, every care should be taken to support the strength of the patient. In abortions at the fourth or fifth month, the hemorrhage may be so profuse and sudden as to be alarming from the first. This is particularly the case in abortions occurring about the time of the cessation of the catamenia. In such cases, if the hemorrhage cannot at once be arrested by astringents, cold, and the tampon, the membranes should be ruptured with a view to stop the hemorrhage, and to excite expulsive action of the uterus.

When an abortion is threatened, the accoucheur should order all the discharges to be saved for his examination. Every clot and every portion of solid matter should be carefully inspected. Otherwise it may happen that the patient or her nurse may tell you she has aborted when she has not done so, coagula having been mistaken for the ovum. Or it may occur that the ovum having passed unnoticed, and slight or profuse hemorrhage continuing, as it sometimes does, for a considerable time, the accoucheur is puzzled by expecting an abortion long after it has been accomplished. In connexion with these points, it must be borne in mind that cases occur in which the ovum appears to be dissolved, and slowly discharged with sanguineous matters, just as the decidua is discharged in the lochia after parturition. A delicate ovum of a few weeks may disappear within the uterus, as occurs in certain cases of molar gestation, and the membranes may be broken down and discharged as detritus. Either of these three cases may prove very embarrassing to the practitioner. Whatever care may be observed, cases will occasionally occur in which women who have passed two or three menstrual periods, and exhibited the signs of early pregnancy, will be seized with the symptoms of abortion, and suffer from a sanguineous discharge for a considerable time, without passing any detectable portions of an ovum. After this the patients may menstruate regularly, and it becomes exceedingly difficult, or impossible, to decide whether they have aborted or suffered from a temporary suppression only.

The indications which should make us abandon all hope or intention of saving the ovum are, sudden losses of blood to such an extent as to imperil the life of the mother, or such a continuous drain as seriously to endanger her health; it being also certain, or nearly so, that in such cases the ovum is diseased or already dead. If, on examination, we can feel the ovum at the os uteri, or in the cervix uteri within reach of the finger, we may be certain that its expulsion is only a question of time. As a rule, there is little hope of saving the ovum after the rupture of the membranes and the discharge of the liquor amnii. I have, however, seen at least one case in which gestation went on to the full term after the discharge of the liquor amnii at the fifth month. Fœtid discharges, particularly in early abortions, are a pretty sure sign of the death of the ovum.

When all expectation of saving the ovum has been abandoned, means must be taken to obtain its removal from the uterus. If the bag of the early ovum can be *felt with* the finger in the cervix uteri, it can generally, by careful manipulation, *be separated* from the uterus, and got away by the finger alone. Sometimes it is

necessary to introduce the hand into the vagina, in order to get the finger into the uterus; and if the hemorrhage is alarming, the case urgent, and the os uteri sufficiently dilated to admit the finger, there need be no hesitation in adopting this measure. I have never seen any ill effects arise from such an introduction of the hand and finger. When the os uteri is undilated, and the hemorrhage is great, Dr. Simpson recommends the introduction of one of his sponge pessaries, with a view to the mechanical dilatation of the os and cervix. The only precaution necessary in such cases, as in all instances in which sponge is used in the vagina, is not to allow the sponge to remain long enough to become fœtid. The ergot of rye and the cannabis Indica may be given for their oxytoxic effects in cases where it is thought unadvisable to remove the ovum, or portions of the ovum, mechanically. Galvanism has been suggested by Dr. Robert Barnes, and from what I have seen of its action in cases of intra-uterine polypi, I have no doubt it would contribute to expel an ovum in a difficult case of abortion. We may turn the reflex connexion between the rectum and the uterus to great account in the treatment of abortion when there is no hope of saving the ovum. A drastic cathartic enema will often complete the expulsion of an ovum in the most rapid manner. Various instruments have been proposed and recommended for the mechanical extraction of a partially-detached ovum. There is, however, no instrument equal to one or two fingers when they can be introduced. The last invention of this kind is an instrument proposed by Dr. Fleetwood Churchill, on the principle of the familiar apparatus for getting a cork from the inside of a bottle. In France, a small forceps, somewhat resembling the lithotomy forceps, is used for the same purpose. Dewees invented a wire crotchet for the extraction of the ovum. It must be said, however, that with all the instrumental devices for the removal of the embryo, there is danger of injuring the uterus, and with the hand in the vagina, a case can hardly occur in which the embryo, membranes, or portions of the latter, when retained, cannot be detached and brought away by the finger. Time and patience are sometimes necessary for this manipulation, but I have never know it fail.

I have seen cases where it was necessary to give chloroform before introducing the hand. In a case I saw with Mr. Ballard, of a retained placenta in an abortion at the fifth or sixth month, no other means would have enabled us to extract the remains of the ovum. The ordinary modes of procuring its removal had been tried in vain. The patient was in such a state of frenzied excitement that any introduction of the hand would have been impossible while she remained conscious. The cord had broken, and the placenta had been retained thirty-six hours, and there was no choice but that of leaving the placenta or giving chloroform. There was no difficulty in introducing the hand, but the placenta had to be peeled from the surface of the uterus. The dangers of retained placenta are well known, and in a case of difficulty I should not hesitate to advise the use of chloroform in similar cases.

The condition in which the ovum is expelled varies greatly in different cases. The most favourable way in which an early abortion can occur is where the detachment of the entire ovum takes place before the act of expulsion occurs. The perfect ovum is then expelled at once, and the uterus contracts without much hemorrhage. In other cases the membranes are ruptured, and the small fœtus comes out alone or enveloped in the amnion, or the membranes may be discharged piecemeal, leaving the ovum to escape afterwards. As a general rule, the membranes remain after the expulsion of the fœtus; and the earlier the abortion, the longer the membranes or placenta have a tendency to remain. This is probably owing to the extended adhesion of the ovum to the internal superficies of the uterus, and the feeble power of the uterus to contract on its contents. Sometimes the membranes of an early ovum will remain for weeks, but in such circumstances there is not the same tendency to decomposition and its dangers, as there is in the case of the placenta at the full term.

The mechanism of abortion varies considerably, according to the time between conception and the term of natural labour at which the accident happens. No doubt abortion may occur in cases where conception has taken place just before a period, when the motor act of expulsion would probably be limited to the Fallopian tubes, the ovum being carried out of the uterus with the menstrual discharge. In cases occurring in the early months, the canal of the cervix and the os

uteri have to be dilated before the ovum can pass, and this process of dilatation occupies a considerable time, and frequently causes much suffering. When the dilatation has occurred, the ovum is expelled by the contractions of the imperfectly-developed uterus. The contractions of the uterus occur periodically, and are accompanied by periodical pains, as in labour at the full term. The nearer the time at which the abortion takes place is to the time of labour, the more closely do the pains and the motor action and mechanism resemble those of natural parturition. In abortion occurring after the formation of the placenta, the tendency, as regards the expulsion of the ovum, is to imitate labour at the full term. The cervix uteri is slowly dilated, the membranes ruptured, and the fœtus expelled, to be followed, at a longer or shorter interval, by the membranes and placenta. In the early months, the difficulty occurs, not in the passage of the fœtus through the pelvis, but in the dilatation of the undeveloped cervical canal. As gestation advances, and the cervix uteri becomes developed, the difficulty of passing through the cervix becomes diminished, while that of passing through the pelvis is increased. When the ovum is small, the contractions of the uterus are chiefly or solely concerned in its expulsion; but when it is large enough to distend the vagina, the abdominal and respiratory efforts are called into play.

Usually, an abortion is not attended by any great danger. Women recover rapidly from the loss of an ovum, and there is a remarkable aptitude for conception afterwards. They do, however, sometimes perish from loss of blood, convulsions, or rupture of the uterus. They are also liable to the dangerous and fatal affections which attend the puerperal state. Tetanus, resembling the traumatic disease in character, has been known to occur after miscarriage, and in rare cases blood has passed through the Fallopian tubes into the peritoneum, causing death by peritonitis. Abortion occurring from small-pox and scarlatina is especially dangerous to the mother. When women abort frequently, great damage is done to the general health; a profound anæmia is caused; and patients may die of secondary diseases arising out of the debility induced by the recurrent miscarriages. When the whole of the ovum has been expelled, it is rare to meet with any profuse post-partum hemorrhage. The uterus is at once so diminished in size as to prevent the risk of bleeding. It happens, however, that occasionally small portions of the membranes are left in utero, and are a source of irritation and bleeding for weeks after the loss of the ovum. When the entire ovum is extruded, or brought away completely in detached portions, the woman is at once in a state of ease. A discharge, generally similar to the lochia, continues for some days. As regards rest and other management, a patient, after a severe abortion, should be cared for in the same way as a woman who has been delivered at the full term—that is, she should be kept in bed, and ordered a light unstimulating diet, until she has regained her strength. The breasts are sometimes stiff and painful, but rarely give much trouble after an abortion.

We must take cognizance of diseased states of the placenta in the treatment and prevention of abortion. When the fœtus is threatened with death because the placenta cannot perform its nutritive and respiratory functions, we may, through the mother, act upon the placenta, and assist it in the performance of its functions. Dr. Power prescribed the inhalation of air containing an increased quantity of oxygen, or the use of medicines containing a large proportion of oxygen in a loose state of combination, as nitric acid, in cases where the child has been lost repeatedly in the latter months of pregnancy. Dr. Simpson states that he has found chlorate of potash useful in cases where the fœtal respiration is imperfect. Every care should be taken in such cases to keep the blood of the mother in a healthy state. It is evident that the sanitary condition of the fœtus must mainly depend on the condition of the arterial blood of the mother, this being the medium in which the embryo respires. It has been recommended that, in cases of repeated peritonitis or cerebral disease in the fœtuses of the same mother, mercurialization and other means should be employed with the view of reaching the ovum through the maternal circulation; but, in the present state of our knowledge, our means of diagnosis in diseases of the fœtus are too obscure to render therapeutics of much value. In syphilis affecting the mother, or when the father is syphilitic, there can be no question of the propriety of mild mercurialization as a means of warding off the dangers of abortion, regard being had to the fact, that the careless use of

mercury may itself be the cause of abortion. In the prevention of abortion from fatty degeneration of the placenta, the strength of the mother should be supported in every way. The chlorate of potash, nitric acid, mild preparations of iron, and, above all, fresh air, should be recommended. The treatment of fatty placenta should be the same as fatty heart, or fatty degeneration of any other organ.

The prevention of abortion is an important subject. The whole of the treatment of the disorders of pregnancy has a direct bearing upon this subject. In women who abort from habit, when the nervous system is chiefly concerned in the production of the accident, all emotional disturbance and reflex sources of irritation should be avoided as far as possible. The pregnant woman should not suckle, or be subjected to any mammary irritation. Mr. Lloyd has related a case in which a small tumour having been removed from the breast of a pregnant woman, she aborted, and died of metritis. Irritation of the dental nerves should be guarded against. The rectum should be remembered, not merely as a neighbour to the uterus, but as possessing an excitor surface in reflex relation with the uterus. Ovario-uterine and vaginal irritation should be soothed, and excitement avoided, particularly at the catamenial dates. It is a useful point in the Periodoscope I constructed some years ago, and some thousands of which have been used by the profession, that it points out, at a glance, the catamenial dates of any pregnancy. The late Dr. Griffin, of Limerick, recommended large doses of quinine in the case of women who abort repeatedly at the same date of pregnancy. Mr. White, of Manchester, recommended cold or tepid bathing, with success, as a preventative of abortion. Some accoucheurs advise a daily enema of cold water, in women of weak, irritable habit. When the tendency to abort is very strong, nothing is so likely to prolong gestation to the full term as absolute rest in the horizontal position. When all other means fail, an attempt should be made to eradicate the abortive diathesis by a year's marital separation, and a tonic treatment in the meantime.—*Lancet, March* 22, 1856, *p.* 303.

128.—THE ANATOMICAL RELATIONS BETWEEN THE MOTHER AND FŒTUS.

By Dr. Henry Madge.

[It is sufficiently evident, that if the nature of the vascular connexions between the uterus and the placenta were properly understood, we should be better able to treat the various kinds of uterine hæmorrhage connected with pregnancy. It may appear a very easy and simple subject to some, but there are many opposing opinions on the subject. We hope that the remarks here made will at least assist in simplifying a subject so important to the practitioner and interesting to the anatomist.]

The opportunities of examining the human placenta attached to the uterus immediately after death are so rare, or when they occur are so rarely made use of, that, since the time of the Hunters, the only detailed examination placed on record is that by the late Dr. John Reid, in the "Edinburgh Medical and Surgical Journal," 1845. These opportunities seem to have been equally neglected in other countries, for the utero-placental anatomical descriptions of our countrymen are employed as the basis of most of the monographs on the subject by the authors of every country. Even at the Concours, in Paris, which I attended on one occasion, when the subject was "The Membrane Caduque," it was agreeable to hear the candidates, about a dozen in number, repeatedly trying to pronounce the names of Harvey, Hunter, Reid, and Thompson. It would occupy too much space to show, step by step, how far my observations agree with those of Hunter and Reid; but I may state that I find myself opposed to them in many particulars. It must be confessed that the views of those eminent men on this particular subject have been a long time before the profession without any great advantage to the practitioner.

On the evening of Oct. 16th, 1854, a patient of Dr. Parkes, of Great Marlborough-street, died in convulsions a short time after the commencement of labour. With the consent of the friends, I assisted the gentleman in attendance (Dr.

Parkes was not present) in making the Cæsarian section, and removing the child. Unhappily, although there was as little delay as possible, the child full grown—a perfect model of development—and evidently alive but a few moments before the operation—we had the mortification to find that all our efforts to make it breathe were fruitless. And here I would remark, that the death of the mother could not, in this instance, be considered the immediate cause of the death of the child. Dr. Lever, in the last volume of "Guy's Hospital Reports," states that in two instances he has seen and felt the movements of the child in utero half an hour after the death of the mother, and was only restrained from saving their lives by objections raised by the relatives. My friend, Dr. Harley, when house-surgeon to the Edinburgh Infirmary—in a case where a woman at the full period of pregnancy died from laryngitis—was fortunate enough, on removing the child with very little delay, to save its life. Successful cases of a similar nature are not very rare. It is not improbable that in our case the life of the child was destroyed by violent contractions of the abdominal muscles on the uterus, aided by long-continued disturbance of the utero-placental circulation during the convulsions; and it may be added that some have thought the child itself may become the subject of convulsions simultaneously with those of the mother.

After the child was removed I also removed that portion of the uterus to which the placenta was attached. I had previously carefully examined the placenta and membranes *in situ*. The uterus remained in its uncontracted state; its walls had an average thickness of about an inch, and the whole internal surface was lined by the decidua vera. This membrane presented a smooth whitish appearance, covered here and there by glairy mucus, moistened, and probably altered in appearance, by the discharged liquor amnii. Except near the placenta, it was perfectly detached from the chorion and decidua reflexa. The two latter membranes appeared to be somewhat blended; but, with a little care, could be easily separated. On approaching the edge of the placenta, to the extent of an inch around its circumference, the blended chorion and decidua reflexa were firmly adherent to the decidua vera, and required considerable care and force for their separation. My impression is that this is one of the means by which the placenta is kept in its position—i. e., a placenta situated as in this case at the fundus uteri, losing the support of this circular band of union between the membranes, would fall from its situation. The so-called utero-placental vessels and the cellular tissue in which they are imbedded, would be too soft; they are almost gelatinous, and therefore too weak to support the weight of the placenta and cord. The amnion was easily separated from the chorion, even as high up as the cord; and it is possible to carry the separation as far as the navel. The chorion, however, could not be separated from the border of the placenta without tearing. Many of these points, with others that I have to describe, may be seen in the preparation. It is well preserved, and is now before me. About two-thirds of the placenta is still adhering to a portion of the uterus.

After examining the parts in their natural position, I removed them, and hastened home to place the whole in warm water. Then, having cleared the placenta of as much blood as possible, taking care that the water in the basin remained warm and clean, I injected into the umbilical vein a large quantity of warm water coloured. This was done with the intention of learning whether any of it would pass into the water in the basin through the large gaping sinuses on the cut surfaces of the uterine walls. I have frequently failed to inject placentæ from the difficulty of getting them whole; but with this one, no portion of the utero-placental connexions being disturbed, I was enabled to distend it to a considerable size, and after a long time, some of the injection oozed back through the umbilical arteries. Although I continued injecting coloured fluid for upwards of an hour, the water in the basin remained colourless, except indeed being slightly tinged with a little blood that, notwithstanding the pressure I had employed, still remained in the uterine vessels. No portion of the coloured injection passed beyond the placental vessels. This proves, or I should rather say, in deference to the experiments of others, supports the position, that no fluids by means of bloodvessels can pass rom the child to the mother. I now made an opening on the external surface of the uterus, corresponding to about the centre of the placenta, and having found a large artery, I threw into it an injection, consisting, for the sake of its running

freely, of a small proportion of yellow wax melted in olive oil. After injecting as much of the oil and wax as it was possible to get in, that part of the examination was left for the next day.

It now occurred to me that I should like to see the utero-placental arteries and veins, or anything else lying or passing between the placenta and uterus. On very carefully lifting the edge of the placenta, and raising its substance for a few inches from the internal face of the uterus, using at the time a powerful magnifying glass, I found that, instead of having torn through arteries and veins, leaving large open mouths, which have been supposed to be the frightful source of uterine hemorrhage, there was really nothing of the kind to be seen. The placenta appeared to be merely in apposition with the uterine decidua, and kept there by the means already alluded to, aided probably to some extent by a very slight and imperfect stratum of cellular tissue. The uterine surface of the placenta, covered by a thin, imperfect membrane, by some called the placental decidua, was not entirely free from marks of blood, but these were only small points, almost as few and as far between as the red points seen on making a section of the brain. I am quite aware that in the practice of midwifery we sometimes find the placenta saturated with blood, but this appearance arises from a cause which I am able to explain; and is it not an argument in favour of my views, that after ordinary labours we frequently find the uterine surface of the placenta almost as free from blood as in this case, where it had not to pass through the natural passages? To proceed with the examination. It must be remembered that the uterine decidua as yet remained perfect. Finding a little bulging at a certain part of it, about an inch from the border of the placental attachment, I made a small incision, and immediately a portion of the injection which I had thrown in at the back of the uterus made its appearance. On the following day, the injection having hardened, I dissected the uterine substance from without to within. I found the injection in several parts, but the greater portion was deposited in lumps, about the size of filberts, on the uterine decidua. The sacculi containing the injection seemed to be formed by processes of the decidua fixed to the uterine walls, forming septa between them; they were irregular in size and form. It was one of these sacculi that I had noticed the day before, on the other side of the decidua, by its bulging appearance.

In the substance of the uterus, I found that the bloodvessels lose their distinctive characters of arteries and veins from without inwards. The inner third is made up entirely of a net-work of sinuses, without any larger arteries and veins than those necessary for the nutrition of the parts in which they are found. These are the small vessels, or continuations of them, and therefore still smaller, that pass through the uterine decidua, the rupture of which gave rise to the points of blood seen on the uterine surface of the placenta; they are similar to the vessels of new tissues, mere minute canals, as imperfectly organised as the tissues they are intended to nourish. All this goes to prove that fluids do not pass from the mother to the child directly by means of bloodvessels; and also that there are no utero-placental arteries and veins, the rupture of which can give rise to what we call uterine hemorrhage. Where, then, does the blood come from? My conviction is, that when the placenta is removed, the sacculi I have spoken of become over-distended with blood, and burst; the membrane forming them is easily torn, and one after the other they give way. But by this time the outer muscular fibres of the uterus have probably contracted, which, by preventing more blood from being sent into the sinuses, and these themselves being interlaced with contractile fibres, their calibre is obliterated, and the hemorrhage is arrested. The gush of blood which sometimes comes down upon the hand of the accoucheur, I believe arises from the sudden bursting of one of these sacculi. It is difficult to imagine that the open mouths of either arteries or veins could produce such a result. These, however, the proper bloodvessels of the uterus, are comparatively remote from the surface exposed by the removal of the placenta; they only communicate with it indirectly through the uterine sinuses, which form a supplementary and different kind of circulation. The communication of the uterine arteries and veins with the sinuses is somewhat similar to that of the pudic arteries and veins with the corpus cavernosum. The uterine sinuses may be said to some extent to represent the same structure on a larger scale; and I believe that the uterine arteries and

veins have no more to do with uterine hemorrhage from the removal of the placenta, than the pudic arteries and veins would have with hemorrhage from an exposed surface proportionate in size—of the corpus cavernosum.

I think I have shown that the mere removal of the placenta cannot possibly give rise to hemorrhage. It can only be regarded as an indirect cause of that occurrence, which, after all, is nothing more than a natural and healthy process, a disgorgement of the over-strained sinuses, and, except in a lax and unfavourable condition of the uterus, interfering but little with the general circulatory system of the mother. Formerly, I often wondered at the immense losses of blood which women sometimes sustained with impunity. Now, knowing that large portions during pregnancy are made unnecessary to the mother, and as far as regards quantity, gradually, as it were, removed from her system, my wonder is much diminished.—*Lancet, Feb.* 23, 1856, *p.* 204.

129.—*Placenta Prævia: Induction of Labour by the Uterine Douche.* By Dr. X. Bourgeois, Tourcoing.—[The patient was a woman of weak constitution, aged 34, who had borne several children. She was attacked at the middle of the seventh month with hemorrhage, which recurred frequently, and produced so much exhaustion as to endanger her life.]

Dr. Bourgeois determined on employing the uterine douche. The neck of the uterus was smooth and soft; the finger could be introduced into the external orifice, but the internal orifice was closed. The first douche was administered on October 2nd, at 3 p.m., and was continued twenty minutes. Seven quarts of water were injected, at a temperature 95 deg. Fahr. The woman was replaced in bed; she complained of no pain. At 8 p.m., the douche was again repeated for twenty minutes. There was no pain in the abdomen or loins. On October 3rd, the douche was employed from 9 to 9¼ a.m. During the operation, labour pain set in, and recurred several times during the day, the uterus becoming hard. In the evening, the neck of the uterus was almost obliterated, and, on passing the fingers into the orifice, the cotyledons of the placenta could be felt. During the night the patient slept a little, but was soon awakened by pain. On October 4th, dilatation was going on and the pains were lively. On October 5th, the pains recurred every quarter of an hour. The placenta, which was inserted on the inferior segment of the uterus, became detached, and passed into the vagina: from this situation Dr. Bourgeois removed it, and placed a ligature on the chord at its fœtal end. The head descended slowly; and in the evening, seven hours after the expulsion of the placenta, a small dead child was born. There was no loss of blood; and the patient made a favourable recovery.

Comparative Merits of the Uterine Douche and Ergot.—In some remarks appended to the above case, Dr. Bourgeois draws a parallel between the uterine douche and ergot. The douche, says he, may with advantage be substituted for ergot in almost all cases.

Like ergot, the uterine douche may arouse contractions; but it has the further merit of exciting them—a property which ergot is by no means demonstrated to possess.

When the contractions are weak or suspended, the action of the douche is as efficacious as that of ergot; while it endangers neither the mother nor the child. On the other hand, ergot has caused, in the mother, rupture of the uterus, laceration of the vagina and perineum, fistula, and gangrene; and, in the infant, asphyxia, &c.

The action of ergot, whether the dose be weak or strong, cannot be regulated. The douche, on the other hand, acts gradually; it softens and distends the neck and external parts, and facilitates expulsion. Its force may in some degree be regulated according to the indications.

Before ergot can be given, labour must be advanced, the neck of the uterus must be obliterated, the edges of the uterus must be soft, dilatation must be easy, and the external parts must not be too resistant. The douche, on the other hand, may be employed at the commencement of labour, and in all degrees of dilatation of the neck, even when the liquor amnii has been prematurely discharged.

When severe hemorrhage sets in during labour, and the neck is not sufficiently dilated to allow of the employment either of the hand or the forceps, accoucheurs employ ergot. Would it not be better to employ the douche, which would act more certainly and readily, and would not give rise to the dangers which ergot produces when given before the neck is completely dilated?

Dr. Bourgeois has found that the uterine douche is capable of arresting hemorrhage occurring during labour from inertia of the uterus.—*Gaz. des Hôpitaux, Oct.* 27, 1855.—*Association Med. Journal, Jan.* 12, 1856, *p.* 29.

130.—CASE OF TURNING AS A SUBSTITUTE FOR CRANIOTOMY.

By Alex Morton, Esq. Communicated by Dr. James Wilson.

[Mrs. C., a healthy married woman, aged 25, after her first labour, which was easy, had a severe attack of what was considered rheumatism about the pelvis. Her second labour was also comparatively easy, because premature. Her third labour was very difficult: the head of the child became impacted, an attempt was made to deliver with the forceps, but failed, and craniotomy was necessary. In her fourth labour, Mr. Morton determined to adopt the plan proposed by Dr. James Wilson, a few years ago. On making examination, the head was found presenting, evidently thrown forwards by the promontory of the sacrum, and prevented from entering the pelvis. The pains were regular and severe, but had no effect upon the position of the presentation.]

The patient having now continued about 24 hours in labour, and no progress made towards delivery, dreading a repetition of the painful proceeding which occurred at the third labour, I resolved to delay no longer, but to profit by the suggestions thrown out by Dr. James Wilson in similar cases, and turn the child, if possible, before the evacuation of the liquor amnii. I sent for him; and the plan proposed was approved of, as the more likely means to save the child, and save the mother much suffering.

It was agreed to proceed at once. I introduced my right hand into the vagina, passed it easily through the os uteri, and slipped it up between the membranes and walls of the uterus. I ruptured the membranes, grasped the right knee of the child, brought down the breech and left leg; with considerable effort I was enabled to bring down the left arm, then the right arm; the head rested on the brim of the pelvis. I endeavoured to bring it down by introducing a finger of the left hand into the mouth, and at the same time applying traction with the right hand over the shoulder. I was unable to bring it down with such force as I considered safe to use. Dr. Wilson then made trial in the same way. The base of the head was now in the brim of the pelvis, but it could not be brought farther without using such a degree of force as would have destroyed the child. I immediately applied the forceps and completed the delivery.

The child, a girl of ordinary size, was still-born; but by inflating the lungs, and the use of other means, in the space of half an hour the breathing was completely established. Both mother and child continued to progress most favourably, the former being able to be up on the eighth day, and the latter at present alive and well.

Remarks by Dr. Wilson.—This case shows, most satisfactorily, the advantage of turning in those cases where the pelvis is so constructed as not to admit of a child, at the full time, being delivered without the disagreeable and destructive alternative of embryotomy. There were several circumstances in this case which, without doubt, tended very much to a favourable result. In the first place, Mr. Morton, in anticipation of turning, had taken great care to preserve the membranes entire; this rendered the operation easy and safe to both mother and child. There was also a very great quantity of liquor amnii: and other favourable circumstances, as the unimpaired strength of the patient and energy of the uterus, rendered the extracting force much less than it otherwise would have been had the uterus been passive, or acting irregularly, as it often is in these cases. The last circumstance worthy of notice, was the great advantage derived from the use of the forceps in the speedy delivery of the head. I do believe the child's

safety depended on this. The application of the forceps was just as easy as when the vertex presents above the brim; and the extracting force used by the forceps was certainly safer than the same force used by pulling by the body or neck of the child. Besides, the necessary compression of the head may be more effectually accomplished than by the irregular and jutting points of the distorted pelvis; the pressure made by these points may not be on those parts of the head which admit of compression at all; but we are always sure, when the forceps are applied over the sides of the head, that the pressure is made over the whole line of the parietal bones from below upwards—the parts alone capable of being compressed.

It has been stated above, that the forceps were easily applied. I am convinced, from the trials I have made of the forceps in those cases where the head was above the brim of the pelvis, that the application of the instrument is easier than in vertex presentations, because you have the head fixed, and you know exactly its position.

With regard to the extent to which compression of the head may be safely carried, that has its limits, and may, in the most of cases, be carried to the extent of half an inch. Dr. Burns, in a foot-note, p. 431 of his 'Midwifery,' says:—"The head can bear more pressure before the child is born than after it has breathed. Respiration is more under the influence of the brain than the action of the heart is; and the action of the latter ceases when the brain is injured or compressed, not so much because it is directly affected, as because respiration, with which it is associated, ceases." Be that as it may, no conscientious practitioner would presume upon it; and I do not think Dr. Burns stated this with any view to encourage rashness, or to carry compression to any undue length.

In all cases where the head is detained after the delivery of the body, surely the use of the forceps, for the purpose of extracting the head, is greatly preferable to pulling by the body or neck of the child, whether the detention of the head be from a contracted state of the pelvis, or from any other cause. Baudelocque says, p. 124:—"Every one knows the danger to which the child is exposed in those labours where we are obliged to extract it by the feet, especially when the pelvis is rather narrow with respect to the volume of the head. Its death then is almost always inevitable, whether we exert violent efforts on the trunk with a design to extract the head, or leave the delivery to nature, after having disengaged the feet, as some have too generally recommended. In the first case, the child is a victim to the forced extension of the spinal column, the stretching of the spinal marrow which it contains, and the luxation of some of the cervical vertebræ, or of the head itself; in the other, its death is, on the contrary, the effect of the pressure which the umbilical cord as well as the breast suffers in passing the canal of the pelvis. . . . Art holds out but a feeble hand to the child in this unfortunate circumstance, and the most certain of its resources does not always secure the child from the pressing danger which threatens it. Smellie applied the forceps several times with success in these cases, and I have trod in his steps." I need hardly mention that both these authors, and others, have given particular directions, with plates, how the forceps are to be applied when the head is detained after the body is delivered. When lecturing on midwifery, I was in the practice of exercising my students with the delivery of the head in this way, with the forceps upon the machine.

While upon this subject, I may mention that I have met with a species of pelvic deformity in two individuals, particularly well adapted for turning, and which occasioned me a very great deal of trouble, and the mothers much suffering, with the loss of several children, before the nature of the deformity was discovered by me. The malformation was this: the lumbar vertebræ were very much curved forward, carrying the base of the sacrum in the same direction, while the lower parts of that bone were bent backwards, forming nearly a right angle with the spine. This inclination of the pelvic brim was at the same time much more inclined than it is in the normal state; in fact, the pubes was almost directly below the projecting promontory. The head of the child was consequently thrown over and upon the pubes, rendering it impossible for the head to enter the brim. An ordinary examination conveyed the impression of extreme want of space, the head lying *over the pubes*, and the projecting promontory almost directly above it led to the *deception*, and it was not till after several children were lost that I discovered, by

the introduction of the hand to remove a retained placenta, that there was space enough, both in the brim and cavity of the pelvis, and that the child could be easily brought to pass by the feet, while it could never be made to pass by the head, as I had unfortunately experienced in the former deliveries without breaking down the head.

There is a notice of this malformation of pelvis in Bland's observations on human and comparative parturition, so much in point that I cannot avoid quoting it. He says—"Although the sacrum may project so much, or advance into the pelvis so far, as to reach within two or three inches of the pubes, consequently the entrance into that cavity would be only of that diameter, if the bones were directly opposite to each other; yet the pubes being placed something lower than the greatest projection of the sacrum, and opposite to a part of that bone that diverges backward, the real distance between them may be much more considerable than to the touch it may seem to be; whence it happens, that in cases where the projection of the sacrum has occasioned exceeding great difficulty in the beginning of the labour, opposing an almost insuperable bar to the entrance of the head of the child into the pelvis, by directing too far over the pubes; yet when that direction has been altered by the crotchet, or by any other means, and the head brought into the line of the centre of the pelvis, the conclusion of the labour has been frequently effected with very little exertion or force."—Page 200.

Possibly this abnormal obliquity of the pelvis may exist in different degrees more frequently than is generally supposed. Churchill speaks of this inclination of the pelvis varying from 35 to 60 degrees. In all these deviations the labour must be affected less or more, unless the belly of the woman is pendulous, carrying the uterus so far forward as to make its axis correspond to the altered axis of the pelvic brim. In slight cases of this kind, and where the belly is not pendulous, the difficulty may be obviated by placing the patient on her knees, from which change of position all must have witnessed, at times, very rapid and favourable changes take place in labour, which had previously made no progress for many hours. But in the higher degrees of obliquity, as in those cases referred to above, where the obliquity appeared to be not less than 80 degrees, I am fully convinced that nothing except turning can possibly save the child from its destruction by the crotchet.

By the way, it is a good proof of the success of turning as a substitute for craniotomy, when we see a variety of claims put forth for its paternity. I am convinced Dr. Simpson has the best claim to that honour, particularly as giving it publicity, accompanied with reasons for its preference which appear to me to be quite incontrovertible. It is true, Sir Fielding Ould suggested the same thing in the year 1742 in his work which he published at that time; but he says he never tried it, and it would appear that the Dublin school, of which he was a distinguished member, had either not been aware of his proposal, or had repudiated it, as their practice has been the very opposite of his conservative plan. Nevertheless, I am sure Dr. Simpson, and every one who entertains his opinions respecting turning as a substitute for craniotomy, will cheerfully yield the claim of priority to their Dublin friends, provided they follow out Ould's views, and adopt turning in suitable cases for it in preference to craniotomy, for which they appear to have had hitherto an unnatural partiality, according to the Dublin Hospital reports.—*Glasgow Med. Journal, Jan.* 1856, *p.* 394.

131.—*On the Action of Digitalis upon the Uterus.* By W. Howship Dickenson, Esq.—[Having observed that a patient in St. George's Hospital was cured of severe menorrhagia by infusion of digitalis, which was given for some cardiac affection, Mr. Dickenson was induced to try the remedy in other cases, the result of which was as follows.]

In every case of uterine hemorrhage, unconnected with organic disease, requiring the employment of active remedies, admitted into the Hospital after October, 1854, the administration of digitalis was had recourse to as the sole treatment, and the discharge was invariably arrested by it. The time which elapsed before the hemorrhage subsided varied with the dose in which the digitalis was exhibited.

When large doses were given, as an ounce to an ounce and a-half of the infusion, the discharge never appeared after the second day; when smaller doses, it never continued beyond the fourth day. In uterine hemorrhage connected with organic disease, the remedy acted with less certainty; its exhibition was required for a longer time, and the effect was sometimes transient. The author then spoke of the mode in which the digitalis operated in controlling uterine hemorrhage; and after concluding that its effect could not depend on the sedative influence of the drug in the heart and arteries, he showed, by various experiments and observations, that the arrest of the hemorrhage was due to the action of the digitalis on the ganglia of the uterus, by which the organ was stimulated, and muscular substance powerfully contracted.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 609.

132.—*Puerperal Peritonitis in the Fœtus and new-born Child.*—M. Paul Lorain, in a thesis on puerperal fever, has traced the co-existence of peritonitis in the infant with puerperal fever in the mother. His opportunities of investigation were afforded him in the Maternity Hospital in Paris, of which institution he was for some time an *interne*.

It is a striking fact, which indeed has not altogether escaped attention, that the greatest amount of mortality among newly born children is coincident with attacks of puerperal fever. M. Lorain found that, out of 106 still-born children, 20 had died from mechanical injury, or accident during labour; 2 from pemphigus, and 10 from intra-uterine peritonitis. Of 256 new-born children, who died at periods varying from a few hours to a few days after birth, 63 were premature and non-viable; and of the remaining 193, 50 died of peritonitis, either simple or complicated with erysipelas, meningitis, abscesses, &c., 10 having all the symptoms of putrid infection. Further, he found that, in 30 deaths among newly-born children from peritonitis, the mother also died from the same disease in 10 cases; while in 5 other cases the mothers had had puerperal affections, but had recovered.

Peritonitis is the only manifestation of the disease in the fœtus. In newly-born children, it has been observed in the form of peritonitis, either simple or complicated with erysipelas, inflammation of the umbilical vein, meningitis, &c., or in the forms of meningitis, pleurisy, abscesses, gangrene, &c.; but the most common form is peritonitis. The mother and child may die of different forms of the disease; for instance, the mother may have meningitis, the infant peritonitis; the infant may die of peritonitis, and the mother of purulent infection, &c.

The principal characters of puerperal peritonitis in newly-born children are thus described by M. Lorain.

The face expresses suffering; the abdomen is tense, gives a tympanic sound, and appears very tender on pressure. Respiration is shallow, short, and frequent. The skin is yellow. The child cries incessantly. It has vomiting, and a bilious fluid escapes from the mouth and nostrils. The pulse is small, and much accelerated; there is generally constipation. The child refuses the breast, especially towards the end of life.

The progress of the disease is very rapid; it generally terminates (always fatally) in three or four days. Most of the children die in ten days after birth. M. Lorain observed only one which was a month old, and another which lived forty days.

One of the most important forms of the disease is the adynamic, characterised by torpor, somnolency, hemorrhage from serous and mucous surfaces, and scorbutic patches on the skin. In these cases, death sometimes occurs within forty-eight hours after birth.

The most usual complications of puerperal peritonitis in the infant are erysipelas, phlegmon, meningitis, and sometimes pleurisy. The symptoms of some of these, especially meningitis, occasionally supersede those of peritonitis.

The only premonitory symptoms are the restlessness of the child, and its plaintive cries. The disease advances so rapidly, that it is often first suspected only when it has attained its height.

The post mortem appearances are characteristic. The jaundice, the great enlargement of the abdomen, the escape of green fluid from the nostrils, and the

rapid putrefaction, render the bodies of those who have died of infantile peritonitis easily recognisable. The peritoneum contains an effusion of serous or sero-sanguineous fluid, rendered turbid by pus and false membranes; and the tunica vaginalis often contains effusions of the same nature. The false membranes have the same microscopic characters as in ordinary peritonitis; the pus is small in quantity. The spleen is often double of its normal size; this has also been observed in peritonitis in the fœtus. The tissue of the organ presents no marked change. In some rare cases, there has been a morbid change in the liver. No change has ever been observed in the lymphatic system.

Of all the accompanying lesions, that of the umbilicus is most worthy of note. As soon as the febrile state supervenes, the umbilicus is placed in the condition of an amputated stump. The wound becomes grey and dirty, and does not tend to heal; the neighbouring vessels also suffer, and the coagula which form in them soften and break up. M. Lorain does not regard the affection of the umbilicus as the cause of the peritonitis. ('Gazette des Hôpitaux,' October 20th, 1855.)

In relation to the above paper, Dr. Belletre, of Abbeville, has communicated the following facts to the 'Gazette des Hôpitaux' for November 10th, 1855:—

During an epidemic of puerperal fever which prevailed at Abbeville in 1851, and in the beginning of 1852, fourteen women died within a few months: nine between the sixth and twelfth day after delivery, five before the end of the third day. In the first category, all the children born enjoyed good health during the earlier weeks after birth. In the second category, there was one abortion at three months, and one child was born dead; three were born alive, but although strong and healthy, they did not live longer than from 43 to 68 hours. Two were seized six or seven hours after birth, with marked symptoms of peritonitis. The mothers had already perceived in themselves some symptoms of the disease towards the end of pregnancy. In both cases, the umbilical cord was dry, and of a dull grey appearance. The third patient fell ill on the day after birth; it had at first peritonitis, which was soon followed by pleurisy, with adynamic symptoms.

M. Belletre also calls attention to the fact, that an epidemic of puerperal fever appears to exercise some influence on non-pregnant females—a fact which has, indeed, been noticed by other observers. He relates three cases of peritonitis occurring, during an epidemic of metria, in females who were not pregnant. In one case, the disease appeared after suppression of the catamenia. The other two patients had slight metrorrhagic attacks at intervals of a few months, ordinarily lasting a few weeks; and it was during one of these attacks that they were attacked with peritonitis. One of these two patients died, as did also the former one.—*Asso. Med. Journal, Jan.* 12, 1856, *p.* 31.

133.—*Seat of Attachment of the Placenta.*—[In a memoir, by Von Ritgen, there is an elaborate and interesting illustration of this subject.]

He refers to the method discovered in recent times, of determining after delivery the height at which the placenta was attached, by measuring the distance of the rent in the membranes made by the passage of the liquor amnii and fœtus from the margin of the placenta.

The bag burst at the edge of the placenta in 22 cases. It burst at one inch from the edge in 8 cases; between one and two inches in 12 cases; two inches in 7 cases; between two and three inches in 16 cases; three inches in 5 cases; between three and four inches in 4 cases; four inches in 6 cases; between four and five inches in 8 cases; five inches in 3 cases; six inches in 6 cases; and eight inches in 3 cases.

It follows, that since the distance of the edge of the placenta from the rent is absolutely decisive as to the distance of the edge of the placenta from the os uteri, the edge of the placenta rested on the os uteri in 22 cases, and was within one inch in 32 cases, within two inches in 49 cases, and so on.

This proves that the placenta has commonly a much lower seat than has hitherto been believed.

It also appears that smallness of the ovum has a closer relation to lower the seat of the placenta than is to be accounted for by the simple diminution of all the dimensions of the uterus.—*Brit. and For. Med. Chir. Review*, April, 1856, p. 554.

134.—ON THE MANAGEMENT OF PLACENTA PRÆVIA.

By Dr. Robert Barnes.

The author passed in review the actual state of obstetric science and practice in relation to the pathology and treatment of placenta prævia. He showed that the prevailing belief was, that so long as the delivery of the child was not effected there was no security against hæmorrhage, and that hence the rule in practice of proceeding to forced delivery as early as practicable was almost universally inculcated, the only exception consisting in the more or less general substitution of the plan of totally detaching the placenta. The author thus showed that, while the practitioner was anxiously waiting for the moment when the dilatability of the cervix uteri would permit the passage of the hand, for the purpose of turning, the patient might perish of flooding; and that, therefore, in the most severe class of cases, those of central placenta, some other resource, some means of placing the patient in security against renewed flooding, before the full dilatation of the os, was eminently desirable. Dr. Barnes then explained the physiological course of a labour with placenta prævia, and the mode in which Nature sometimes arrests the hæmorrhage before the expulsion of the child. He illustrated, by the help of an ingenious and interesting diagram, that a stage of labour arrives when the recurrent contractions of the womb do not entail any further flooding; that the pains return in their usual course, with the usual effect of further dilating the os uteri, and forwarding the labour, but without causing any further flooding; that the labour was in fact resolved into a natural one, and would be safely concluded by the natural powers. Reflection upon these cases had led Dr. Barnes to doubt the truth of the obstetric dogma, which declares that there is no security against hæmorrhage, so long as the presence of the liquor amnii or the child in the womb prevents full contraction. Dr. Barnes then unfolded the anatomical, physiological, and clinical facts which led him to the conclusion that, under proper restrictions, Nature might in many cases be trusted with more confidence than was generally believed. The clinical facts, he said, had come to him first, and led him to examine into the anatomical and physiological bearings of the case. He related cases in illustration, and quoted a commentary upon one of these cases from the memoir he had published ('Lancet,' 1847), in order to establish his priority in the enunciation of the views he now laid before the society; and adverted to the fact, that he had, since the publication of that memoir, constantly taught, in his lectures on Midwifery, the same doctrine; and stated that even the original of the diagram now exhibited, rudely sketched, was also figured in the memoir referred to. He had, therefore, believed his views to be original, and was surprised to find, in several numbers of the 'Berlin Monatschrift für Guburtskunde' for the present year, a controversy between Dr. Cohen, Dr. Credé, and Professor Hohl, in which Dr. Cohen for the first time expounded similar views to his own, whilst Dr. Credé referring to writings of 1853-54, also claimed them; and Professor Hohl assigned them to Dr. Zeitfuchs so far back as 1843. Dr. Barnes acknowledged, with pleasure, that Dr. Cohen's views of 1855 fully confirm those put forth by himself in 1847; but he found, in the writings of Credé and Zeitfuchs, nothing whatever to show that either had, in the remotest degree, possessed himself of the points in question. But Cohen had gone beyond the author in proposing a new operation based upon the physiological and clinical facts expounded. This operation consists in—1st. Determining the side of the uterus to which the smaller flap of the placenta is attached; 2. In rupturing the membranes and detaching the placenta from this half of its circumference; 3. Exciting uterine contraction; 4. Hooking finger over edge of placenta, tearing membranes from the freed border of the placenta; and 5. In separating the placenta in a circumference of 190° to 200°. The greater half of the placenta, now freed from the dragging of the lesser half and membranes, is now drawn back, just as in placenta lateralis, with the uterus. From this moment there is no further danger. Cohen insists, like the author, on the impropriety of hastening labour unless urgent complications arise. Dr. Cohen refers to his experience to prove the efficacy of this method, but does not recite any cases in illustration. Dr. Barnes pointed out that the difference between his memoir and that of Dr. Cohen consisted simply in this:—Cohen had, in 1855, carried forward the principle Dr. Barnes had enunciated, in 1847, by proposing

the artificial partial detachment of the placenta, instead of trusting, as Dr. Barnes had recommended in certain cases, the execution of this operation to the powers of Nature. The author then quoted from Sir Charles Bell passages showing that the anatomical distribution and physiological action of the muscles of the uterus accorded with and explained the clinical facts observed in the course of intermissions and cessations of hæmorrhage from placenta prævia as set forth by Dr. Barnes. The author then explained the mode and mechanism by which the hæmorrhage in placenta prævia is arrested. The opening of the mouth of the womb, and the detachment of the placenta adhering to this part, are effected by the active contraction of the longitudinal muscles of the uterus; this active contraction shortens the cervix, when it intermits a passive contraction goes on, which maintains or even increases the shortening of the cervix. This shortening necessarily compresses the torn mouths of the vessels, and checks the flooding caused by each successive detachment of fresh placenta, until the detachment has gone to the boundary line, beyond which point the further expansion of the cervix has no effect, and when all fear of flooding is at an end. It was not therefore necessary that the uterus should be empty in order to arrest the flooding. The arrest depended upon the contraction of the cervix, which went on, although the fundus and walls were prevented from contracting. Dr. Barnes submitted the following as some of the conclusions deducible from his researches:—

1. In cases of placenta prævia, the hemorrhage is sometimes arrested spontaneously before the complete detachment of the placenta, before the discharge of the liquor amnii, and consequently before the expulsion of the child or the pressure of its head against the cervix.

2. That this spontaneous arrest of the flooding is owing to the sealing up of the vessels torn by successive detachments of placenta, and the attainment of a stage of labour when no further detachment can take place until after delivery.

3. That dangerous and even fatal flooding sometimes occurs while the os uteri is still closed, and so undilatable as to render it impossible or expedient to have recourse to forced delivery.

4. That in such cases it is eminently desirable to possess some means of diminishing the hemorrhage until the hand can be passed through the os uteri.

5. The spontaneous or artificial detachment of the cervical portion of the placenta competes with two most formidable operations, dangerous to mother and child—forced delivery, and the total separation of the placenta. The new principle of treatment may, in many cases, supersede forced delivery altogether; since the patient being secured against further flooding, to resort to turning when the flood has ceased is an unnecessary proceeding, although the os uteri may admit of it. In many more cases this principle will be the means of gaining the necessary time to admit of turning or other modes of forced delivery being performed with safety. In almost every case it may supersede the practice of wholly detaching the placenta, since the end in view being the arrest of the flooding, it is better to detach only just so much of the placenta as will effect this end, than by detaching all, to destroy the child.—*Med. Times and Gazette, Dec.* 29, 1855, *p.* 653.

135.—*The Period of Exclusion of the Placenta.*—Von Ritgen says, that instructions were given in the hospital for many years, not to remove a detached placenta without the express permission of the director. The reason was, to ascertain whether the leaving behind the detached placenta would cause mischief to the mother by absorption of the dead matter. This rule was followed for a time, so far as to allow the placenta to remain several days, and until the foul smell became insupportable; but at a later period it was not carried to this extreme, after it was ascertained that *no absorption of decomposing constituents of placenta ever took place, except in cases of fleshy growth of the placenta to the uterus.*

Summarily expressed, the detached placenta remained fifty-two times, or in about one-half the cases, less than four hours in the uterus; and in the other half, between four and fourteen and a half hours.

The spontaneously completely detached placenta was removed artificially in 3 cases on account of hemorrhage. In 1 case it was removed on account of spasmo-

dic pains. In 2 cases after operations. In all the rest, the placenta was removed on account of severe after-pains, heavy pressure of the vagina, difficulty of micturition, disturbance of rest and sleep.—*Brit. and For. Med. Review, April*, 1856, *p.* 555.

136.—*On Molar Pregnancy.*—By Dr. Tyler Smith.—The treatment of molar pregnancy consists in emptying the uterus of its diseased burden, and in supporting the strength of the patient, and warding off accidents while the mass remains in utero. In the carneous moles of small or moderate size, active treatment is very much impeded by uncertainty of diagnosis. If in a case of suspected molar pregnancy the life of the mother should be threatened the ovum should be detached by a catheter or the uterine sound, without hesitation. The ergot of rye may be given, with a view to the arrest of bleeding and the excitement of uterine contractions; but in ordinary cases we are obliged to wait, as in abortion, until the ovum presents at the os uteri, or can be reached with the finger, before we attempt to remove it. If the diagnosis of this form of molar pregnancy should become, as we may hope it will, more perfect and certain than it now is, we might separate the ovum by the sound, detach the os and cervix by sponge-tents, or excite the uterus by galvanism. In the case of hydatid degeneration the treatment is more positive.

It is usual in such cases to give the ergot of rye to induce uterine contraction. If the os uteri is dilatable, we may introduce the hand, and detach the hydatid mass. Dr. Gunning Bedford relates the case of a woman in extreme danger from loss of blood, in which he broke down the hydatids with a female catheter successfully. The hydatids are sometimes attached very firmly, and I once saw a case in which the uterus had been ruptured by the violence of its contractions in expelling an hydatid mole. In the case of a retained ovum with degeneration of the placenta, the membranes should be ruptured, and the expulsion of the diseased ovum brought on, as soon as the mother's health suffers seriously, or the nature of the case becomes unmistakable. The after treatment of such cases is much the same as after ordinary abortion; but it must be said that the health is more broken after molar pregnancy than by the results of simple abortion.—*Lancet, April* 5, 1856, *p.* 363.

137.—*Contractile Power a Sign distinguishing the Pregnant Uterus from all other Abdominal Tumours.*—In a case some little time ago under care in one of the Medical wards of Guy's Hospital, in which a consultation was held to determine whether a large tumour in the abdomen of a young unmarried woman were a pregnant uterus or not, Dr. Oldham took the opportunity of showing to the Students that a certain power of contraction was possessed by the tumour which marked its true characters. The patient's abdomen being well exposed, the outline of the tumour was seen to be less defined before manual examination, than it became afterwards. The hand being applied the tumour at first felt soft and ill-circumscribed, rapidly, however, assuming under pressure a tense rounded form, becoming firm and resisting. The alteration from flaccidity to tension was very marked, and might, as Dr. Oldham observed, be taken as a trustworthy characteristic of a pregnant uterus, since there was no other tumour which possessed any power of altering its form when irritated by palpation.—*Med. Times and Gazette, Jan.* 26, 1855, *p.* 88.

[138.—FIBROUS TUMOUR OF THE WOMB REMOVED BY INCISION AND ENUCLEATION.

By Thos. P. Teale, Esq., F.L.S., Surgeon to the Leeds General Infirmary. (Reported by Mr. J. W. Hopkins.)

[The subject of this case was a married woman, aged 53. For several years she *had been in* delicate health, and during the last two years the menstrual discharge

had been very excessive. A few months previous to her present admission, she was a short time in the infirmary, and by keeping in bed, and the administration of the decoction of ergot, the discharge was much diminished and her health improved; but, on returning home, she gradually got even worse than before, and she was again admitted on Nov. 7th, 1855.]

On examination by the vagina, a large tumour was felt imbedded in the posterior wall, and posterior portion of the neck of the womb. The portion of the tumour occupying the distended cervix formed a rounded mass, filling the hollow of the sacrum, and extending from the posterior duplicature of the vagina to the pubes. High up above this tumour, the anterior lip of the mouth of the womb could with difficulty be reached, by passing the finger upwards behind the pubes. The tumour was round and firm, filling the pelvis. It could not be distinctly felt through the thick abdominal walls above the pubes.

On Nov. 12, Mr. Teale made an incision through the coverings of the tumour, at its lower part, commencing at the posterior duplicature of the vagina, and extending downwards in the median line, for three inches, or more. He then gradually proceeded to enucleate the mass, introducing one, and afterwards two and three fingers, and, at last, the whole hand, between the tumour and the uterine tissues in which it was imbedded. By traction with the hand, aided by lithotomy forceps, the entire mass, being already separated from its attachments, was without much difficulty removed. The cavity of the womb was intact, the tumour having been contained within the posterior wall of the body and neck of this organ. Scarcely a drop of blood was lost during the operation. An opiate, with a glass of brandy-and-water, was given to the patient.

The tumour was 6 inches long, and 4 broad, its larger circumference measuring 13½ inches, the smaller 11½. It weighed upwards of eighteen ounces. It was found to consist of fibres, similar to those of the white fibrous tissue, without any of the yellow elastic kind. When acetic acid was applied the fibres became swollen, and nearly transparent; and numerous oblong nuclei were distinctly seen.

[For two or three days there was a profuse watery discharge from the vagina, which soon assumed a yellowish tinge: this daily diminished in quantity, became purulent, and entirely ceased in about three weeks. There were no unfavourable symptoms. She was kept well up by brandy and nourishment, her health gradually improved, and although not strong, she is able to attend to her domestic dutis.] —*Med. Times and Gazette, March* 22, 1856, *p.* 283.

139.—ON OVARIAN TUMOUR.

By Dr. CORRIGAN, Physician to the Whitworth and Hardwicke Hospitals, Dublin.

[In a clinical lecture on a case which had been under observation for some time, Dr. Corrigan *first* drew attention to the nature of the tumour. It was multilocular, and of two different formations; one, a very large simple cyst, containing fluid; the other a congeries of small cysts, filled with semi-gelatinous curdy fluid. *Secondly*, he noticed its very rapid growth: in five months it had increased to such a degree that it was evident life could not exist much longer, if she were not relieved from the pressure. She was tapped, and the fluid increased so rapidly, that the operation was repeated twice within three weeks. Her state rapidly became more unfavourable, the solid mass remaining after tapping increased, the operation was frequently necessary, and, after one of these, peritonitis came on, and she died in two days.]

The third point is the illustration of diagnosis of ovarian disease afforded by this case. It might have been confounded with pregnancy, or with peritoneal dropsy. It would be out of place to go into all the lengthened details of diagnosis. I shall confine myself to the most certain—the physical diagnostic signs. An enlarged uterus, and the ovarian cyst, as in this case, would equally produce an oval, smooth prominence in the abdomen, and would equally give dulness on percussion as far as the prominence extended; but the enlarged uterus would not give the distinct fluctuation which was perceptible in this case on palpation. The disease might be confounded with ordinary peritonæal dropsy, from the distinct fluctua-

tion which was so perceptible in consequence of the great size of the large superior cyst, the thinness of its walls, as well as the extreme thinness of the abdominal parietes; but change of position shewed that the fluid was contained in a cyst, situated in front of the intestines, for the anterior portion of the abdomen was dull on percussion, no matter how position was altered, while in peritoneal dropsy, alterations of position, it is well known, in nearly all cases, cause corresponding alterations of dulness and clearness of sound on percussion, according as the intestines, distended with the air and fluid, change their relations of level. In this case also percussion of the lumbar region very far back gave useful information, for, as the patient lay on her back, and percussion was made passing down from the umbilicus on each side into each lumbar region, the sound became clearer over each side between the short rib and crest of the ilium, showing that the intestines were forced back into this situation, and were not surrounded by a free fluid, which would have permitted them to float through it.

The fourth point includes the circumstances of the operation performed so often for her relief. Ovarian tumours differ so much in size and structure, that it is idle to speak of them as a class of diseases to be treated on any general principle; each must be considered and treated *per se*. In the present case there was no time, even if it held out any hope of success, of attemping absorption by medicine. The operation of excision we may now consider as abandoned, unless in cases where it is not necessary, and then it is not justifiable; so that we were reduced to paracentesis, and the only question remaining was, whether it would be more advisable to close the opening after discharging some fluid, or to keep it open, allowing the cyst to take on a purulent action, and contract in itself as hydroceles of the neck do. There was this consideration in favour of the latter, that there was adhesion of the large cyst to the peritoneum, for the most careful and repeated examination could detect no sound of frottement on moving the abdominal parietes to-and-fro; but then, on the other hand, the highly marked strumous diathesis of the patient, and the presence of the great number of smaller and hard tumours in the pelvis, rendered it, I may say, quite certain, that a process of suppuration, if established, would certainly prove fatal by exhaustion and irritative fever. There remained then only the operation of paracentesis, and to some particulars connected with it I would beg to draw attention. There are two modes recommended for this operation; one to draw off the fluid by small portions at a time, to save the patient from the exhaustion consequent on the removal of such an amount of pressure from the circulation; the other, to draw off the whole quantity at once, taking care to have the abdomen well swathed, so as to substitute an external pressure for the pressure of the fluid removed. The first mode has no definite rule for the quantity to be removed, and involves, if only very small portions be removed, very frequent repetition of the operation. The second, that is, the operation of discharging the whole quantity of fluid at once, and maintaining an outward pressure by bandage, has, I think, this very serious danger attendant on it, that by evacuating the contents at once, and imposing an outward, and, as it must be, a considerable pressure on the sides of an unhealthy structure, the walls of the cyst are brought in friction against one another; duplicatures or folds are produced in a structure of low vitality and power, the circulating and vital nutritive functions going on in it are readily impeded, and a low inflammatory or congestive action is readily set up, which will quickly propagate itself; and as we know it is a law in inflammation of serous membranes, that inflammation will spread from contiguous surfaces, the unhealthy inflammatory action that may be originally confined to the empty cyst will propagate itself on the opposing surface of the peritoneum, and thus the amount of disease and danger will be much increased. I would beg to submit the plan followed in the several tappings practised in this case, and what would appear to me to be deserving of consideration, as free from the objections attendant on the two modes noticed. It is to allow the fluid to flow without using bandage or pressure, neither closing the orifice too soon, as might be done in compliance with the first rule, nor forcing out all the fluid with the consequent danger adverted to from adopting the second plan; simply to allow as much of the fluid to flow gradually out as the natural elasticity of the distended cyst, and the corresponding return of muscular tone in the parietes of the abdomen and the diaphragm will expel; and when the flow has quite ceased of itself, to close up the

orifice, the patient of course retaining the recumbent position. The observance of this simple rule, I believe, gives us a measure of the proper portion to withdraw without the danger of producing exhaustion, and avoids, on the other hand, the danger that I have already adverted to, as attendant on the sudden withdrawal of the whole contents of the cyst. I believe I have also seen great safety from this mode of operation, in some of those diffuse abscesses in the neck accompanying scarlatina, in which the diseased cellular tissue has lost its elasticity, and cannot follow with corresponding contraction the sudden evacuation of the whole contents, but in which, if the matter be allowed merely to flow out by the *vis a tergo* without any handling or external pressure, the surrounding parts will follow up with slow but steady and corresponding contraction, the gradual flowing out of the matter; and the entrance of air, and duplicatures and friction of unhealthy structures upon themselves will be avoided. The last, or seventh operation, in W.'s case, was followed by fatal result, but this does not, I think, affect the question under consideration. The pelvic tumours were rapidly increasing in size, and must soon have terminated life, and one of these, a structure of low vitality, was wounded by the trocar, and it was upon this the fatal inflammation arose. The point worthy of consideration is, that under unfavourable circumstances of constitution, and accompanying disease of rapid growth, a large ovarian tumour, containing from ten to twelve quarts of fluid, was tapped six times without a single unfavourable symptom, by conducting the operation on the principle above explained.—*Dublin Hospital Gazette, Jan.* 1, 1856, *p.* 353.

140.—ON THE USE OF POTASSIO-TARTRATE OF ANTIMONY IN THE FORM OF ENEMA IN OBSTETRIC PRACTICE.

By Dr. James Young, Methven.

[In a primipara, aged 31, and of full habit, the pains had been strong and frequent for six hours, the os uteri was thin, hard and unyielding, and the external parts contracted and tender; blood was taken from the arm, Dover's powder given, and fomentations applied, but without any beneficial effect.]

Ergot was inadmissible under such circumstances. Reasoning from analogy on the effects of tartar emetic as a local irritant, when employed in the form of lotion or ointment, I conceived that temporary local stimulation of the uterus might be induced more directly from the rectum than through the medium of the stomach, and that subsequent relaxation might be produced in the surrounding parts, without the production of nausea and general prostration. One grain of tartar emetic dissolved in six ounces of warm water and soap was given in the form of enema, not so warm as when given for the purpose of clearing out the bowels, that it might be longer retained, and to avoid being deceived by the relaxing effects of heat. One hour after the enema was given, there was a decided improvement on the rigid os uteri. The vagina became soft and secreted mucus freely. The os uteri became thicker and softer in the edges, and the external parts began to relax and dilate. At the end of one hour and twenty minutes after the antimonial enema was administered, the delivery was easily accomplished.

Encouraged by the result of this case, I selected for after-experiment primiparæ, particularly the robust and plethoric, where most difficulty was to be anticipated.

In eight cases where the pains were weak, and the parts unyielding, it was of great benefit in quickening the pains, relaxing the parts, and expediting delivery, saving much suffering and protracted attendance.

It can then be used with safety in the early stages of labour, although the os uteri be thin in the edges, and the soft parts firm and contracted. In multiparæ, when the parts are normal, the os uteri dilating slowly, and the pains weak, it will sharpen the latter, and thus shorten the duration of labour. Flooding did not occur in any case, nor was nausea or vomiting more troublesome than in the average of ordinary deliveries. In one case (multiparæ) there was pain in the abdomen after the placenta was removed, but not more than is often met with in ordinary after-pains. A cup of good tea was given to the mother as an antidote, and at the same time to refresh her. Being a considerable distance from my resi-

dence, I left an opiate diaphoretic to be taken if the pain in the abdomen should return. On my next visit I was told that it was not necessary. None of the cases required any particular treatment.—*Edinb. Med. Journal*, *Jan.* 1856, *p.* 645.

141.—ON THE DURATION OF PREGNANCY.

By Dr. W. Tyler Smith, Physician-Accoucheur to St. Mary's Hospital, London.

[This is one of the most interesting subjects among the yet unsettled problems in obstetrics. According to one view, the uterus is excited to expel its contents by the maturity of the fœtus. Upon a second hypothesis, the gravid uterus is ruled by the catamenial periodicity, and labour comes on at what would have been a catamenial period. The late Dr. Merriman made a very careful investigation into the duration of pregnancy; he reckoned from, but without including, the last day of the last catamenial period, and he gives a table of 130 mature births calculated in this manner.]

Of these,—

5	were delivered	in the	37th week.
16	"	"	38th "
21	"	"	39th "
46	"	"	40th "
28	"	"	41st "
18	"	"	42nd "
11	"	"	43rd "

This variation is very considerable, and the question suggests itself—In the case of fifty-seven women who carried the ovum beyond the fortieth week from the last menstruation, was the gestation protracted beyond the usual time, or was it that conception occurred one, two, or three weeks after the last catamenial appearance? To these questions we shall have to revert hereafter. Dr. Murphy has given a table of 182 cases, in which the results were somewhat different from those obtained by Dr. Merriman. In Dr. Murphy's cases, the numbers delivered in the 40th and 42nd week were equal, twenty-five in each week; while in the 41st week, thirty-two labours occurred. The late Dr. James Reid, in an elaborate essay on the Duration of Human Pregnancy, begun in 1850, and completed in the 'Lancet,' in 1853, gives a table of the duration of pregnancy in 500 cases, calculating from the last day of menstruation. Of these,—

23	were delivered	in the	37th week.
48	"	"	38th "
81	"	"	39th "
131	"	"	40th "
112	"	"	41st "
93	"	"	42nd "
28	"	"	43rd "
8	"	"	44th "
6	"	"	45th "

These results prove, as in Dr. Merriman's table, that calculating from the last day of the last catamenial period, considerable variations in the duration of pregnancy occur. Is there more regularity in cases where the duration of gestation, or the date of the occurrence of labour, is calculated from the time of a single coïtus? Before entering upon this topic, it must be premised, that in the case of the catamenia, frequent mistakes are made by the most careful women respecting the time of its last appearance. Errors, intentional or unintentional, are still more likely to occur in fixing the time of the coïtus which has resulted in impregnation. Many of these cases occur in unmarried women, in whom there is a very constant tendency to declare that the fruitful coïtus has been a solitary one. Dr. Reid, in the paper referred to, collects forty-three instances of conception after single *coïtus*, all of them resting upon testimony as credible as can be obtained in these cases.

260	days after	single	coitus,	delivery occurred in 1
263	"	"	"	1
264	"	"	"	2
265	"	"	"	1
266	"	"	"	2
270	"	"	"	1
271	"	"	"	2
272	"	"	"	3
273	"	"	"	1
274	"	"	"	7
275	"	"	"	2
276	"	"	"	5
278	"	"	"	1
280	"	"	"	3
283	"	"	"	2
284	"	"	"	1
286	"	"	"	1
287	"	"	"	2
291	"	"	"	1
293	"	"	"	2
296	"	"	"	1
300	"	"	"	1
				48

Thus it will be seen from this table that the average duration of gestation, reckoning from a single coitus, is about 275 days. But in this mode of calculating the term of gestation, variations quite as great as those which occur in calculating from the catamenial periods are met with. Dr. Reid, who wrote with a desire to show that the duration of pregnancy should be calculated from the time of impregnation, rather than from the last menstruation, was obliged to conclude as follows:—"If we allow of a range of from two to six days after menstruation as elapsing probably before conception takes place, it will then appear that about the thirty-ninth week after impregnation is more probably the ordinary duration of pregnancy, and this will coincide with the results of the table taken from cases of single coitus." This means that we can calculate as well from the date of the last catamenia, as from the date of conception, but that in one case we must reckon thirty-nine, in the other forty, weeks. Upon whichever basis we make the calculation, it is proved that the duration of gestation varies considerably, within certain limits, and we must look to other evidence than that derivable from such tables, to show the real cause of the termination of pregnancy, and the occurrence of parturition. In animals, where the date of coitus can be ascertained with greater accuracy than in the human female, the same variations in the time between impregnation and parturition in different females of the same species are found to exist. Thus the chief facts educed from these statistical data are, that, in a large proportion of cases, gestation terminates at a certain time, within the limits of a few days, and that this time bears pretty nearly the same relation to the catamenial dates, as to the dates of fruitful coition. Dr. Reid's is the largest collection of cases of conception from single coitus which has been made, and the result yields the 275th day as the average time for the occurrence of labour. In the calculations from the catamenial dates, Dr. Reid's cases give the same result as those of Dr. Merriman, the average time of the coming on of labour being the 40th week from the termination of the catamenia. If we get two cases of pregnancy in women in whom the catamenia appeared at the same time, the date of parturition may vary within certain limits. The same variation occurs in the case of two females to whom impregnation occurred at the same time. If we look to the results obtained from the observations made upon comparative gestation, the same variation of the duration of pregnancy, as calculated from the date of intercourse, is found; and in animals the utmost accuracy as regards dates can be procured. Baron Tessier found that the average duration of pregnancy in 160 cows was nine months and ten days; but of this number 68 went beyond the 280th day, in 20 gestation lasted 300 days, and in 6 instances it was protracted to 305 days. The late Earl Spencer had the duration

of gestation accurately noted in 764 cows. Pregnancy lasted on the average 285 days. In 8 cases only was this period exceeded by more than 12 days, and only one went 18 days beyond this time. These results differ somewhat from those of Tessier, but there are no grounds for questioning the accuracy of the observations in either case. Other observers have found the same variations in the gestation of the cow. Similar variations have been observed in the gestation of mares, and in elephants; and in the smaller animals, where gestation lasts a shorter time, notable variations in the time of the coming on of parturition are found to occur. The last hypothesis respecting the variable duration of pregnancy is that advanced by Dr. Clay, of Manchester, who argues from cases which have occurred in his own practice, and the facts known respecting the duration of gestation in animals, that the younger the parent the shorter is the term of gestation. Dr. Clay believes that the ages of both parents influence the duration of pregnancy; but dwells particularly upon the influence of the mother.

There is a class of cases not hitherto noticed, by which the duration of pregnancy from the time of coïtus may be ascertained with considerable certainty. In 1851, Mr. Coleman, of Surbiton, drew my attention to the following circumstance:—Two ladies, patients of his, were married on the same day, and both were delivered within ten hours of each other. The marriages took place on the 7th of May, 1850, and one was confined on the afternoon of February 8th, 1851, and the other at two A.M. on the 9th, or 276 days from the date of marriage. Both had menstruated a few days before marriage. I have collected a good many cases of this kind, and they show that in the majority of those in whom labour occurs within the forty-first or forty-second week from marriage, the deliveries occur before, rather than after the 280th day from marriage. It is usual for marriages to take place shortly after a catamenial period, and the inference is, that in these cases impregnation must have occurred within a few days after marriage. Such cases tend to confirm the table of Dr. Reid, in which the average duration of labour was 275 days from the date of coïtus. They do not, however, bear distinctly upon the determining cause of labour, and probably no mere statistics will ever settle the question. I now proceed to state the arguments in favour of the maturity of the ovum as the exciting cause of parturition.

Those who consider the maturity of the fœtus to be the cause of labour, point to the periodicity observed in the growth or flowering of plants, the separation of ripe fruit from the stalk, the leaf from the stem, the regularity with which the young of birds are hatched from the shell, the regular appearance and shedding of the teeth, and similar phenomena of growth and development, as favouring the idea that the fœtus separates from the womb, and excites the phenomena of parturition, in consequence of an inherent periodicity occurring as part of the development of the embryo. Dr. Carpenter refers to the placenta as the organ upon which the contraction of the uterus depends. He draws an argument in favour of this opinion from the phenomena of superfœtation, in which one child is detached from the uterus, a second remaining undetached, apparently in consequence of the immaturity of the placenta. Dr. Simpson has advanced the opinion, that "the loosening or decadence of the membranes and placenta from the interior of the uterus constitutes the determining cause of parturition, and that this loosening, or decadence, is itself the result of the effete degeneration of the structure of the decidua towards the full term of pregnancy." In the observations of Lord Spencer, it was found that gestation with males had a tendency to continue a few days longer than gestation with females. There is a popular belief that this occurs in the case of males in the human subject. In our fishing towns, where the dates of the absence of the husband are known, it is said that when gestation is prolonged beyond the usual term, a boy is expected, and that this expectation is generally fulfilled. Lord Spencer also found that cows in calf by a particular bull had a tendency to go a few days longer than those impregnated by other bulls of the herd. Those who oppose the view that the catamenial dates rule the duration of pregnancy, ask why parturition should occur at the tenth rather than at the eleventh, or any other menstrual period? But this may be replied to by other questions,—Why, for instance, should the catamenial period, *as the rule*, consist of twenty-eight days? or why should puberty come on at a *particular* age? The only answer is, the fact, that these particular periodicities

do occur. In animals, the periodicities of œstruation are little known, particularly in the wild state, but it is asserted that the larger animals do not œstruate sufficiently often to render it possible that in their case the duration of gestation can be a multiple of an œstrual period.

There is one point which has already been adverted to in connexion with menstruation, and which is supposed to militate against the ovarian theory of the cause of labour. As the rule, we have seen that the menstrual periodicity recurs every twenty-eight days; but in some women the period returns a day or two earlier or later than this with considerable regularity. Others are regular every fortnight, or every three weeks; or the period returns only every five or six weeks. What multiple of the catamenial periodicity is observed in such cases? I have carefully noted all the cases I have met with of this kind, and I find in such women the duration of pregnancy is more irregular than usual. The future collection of such cases will be very valuable in elucidating the true cause of labour, far more so than cases in which the last date of menstruation and the occurrence of a single coïtus are recorded. It is said by some who oppose the ovarian theory, that if the ovarian or catamenial periodicity ruled the coming on of labour, the date of parturition should always be exactly 280 days from the last menstruation. This is hardly a valid objection, inasmuch as in the most regular females, the catamenia often appear a few days before, or a few days after, the expected time, yet no one on this account refuses to accept the ordinary monthly periodicity as the rule amongst women. The irregularities in the duration of gestation are certainly not greater than the irregularities observed in menstruation.

The argument in favour of the ovarian influence, as a determining cause of labour, and as regulating the duration of pregnancy, has now to be stated. It is allowed by all observers, that labour has a tendency to occur, and does occur, in a great proportion of cases, in the fortieth week from the last menstruation; and it is equally allowed, that impregnation has the tendency to happen just after the catamenial period. It is also made out by the record of a considerable number of cases in which a single coïtus occurred, that gestation lasts, on an average, about 275 days from the actual date of impregnation. These data make the average duration of pregnancy approach 280 days from the last catamenial period, so that the time between the last catamenial period and the occurrence of parturition is, on the average, very nearly a multiple of a single catamenial period. This is a curious coincidence, even if it were proved that the uterine function of parturition was quite independent of the ovarian influence.

But we know that the uterus performs some of its most important functions under the influence and control of the ovaries. It is allowed, even by those who deny the influence of the ovaria upon parturition, that the catamenial function is ruled by the ovaria, that the ovarian phenomena may occur without menstruation, but that menstruation never occurs without the influence of the ovaria. It is admitted by almost, I think I may say, all practical accoucheurs, that the influence of the ovaria is felt during pregnancy, that women feel uneasiness at the catamenial dates, and are more liable to abort at these times than at others. This is particularly the case with women who have suffered from dysmenorrhœa previously to pregnancy. In certain cases of extra-uterine gestation, as, for instance, in abdominal pregnancy, the development of the fœtus has frequently gone on to the usual limit of pregnancy, when violent pains, as of labour, and contractions of the enlarged uterus, have come on. Dr. Ramsbotham observes on this point: "It is a curious circumstance in the history of these cases, that if the child should live till the term of gestation is completed, as soon as that time has expired, the uterus takes on itself expulsive action, which is attended with pain similar to the throes of labour; and, during these pains, the deciduous membrane is expelled from the cavity with more or less sanguineous discharge." Cases have been not unfrequently met with in which the ovum has been blighted in the middle part of pregnancy, and in which the decidua and chorion have been diseased; but the mother has carried the diseased ovum for a considerable time, or to the natural limit of gestation, when the molar or degenerated ovum has been expelled. There is another class of cases in which twin gestation is proceeding; but one ovum dies, yet the uterus is not excited to contract, but the dead and living ovum go on to the full term. In cases of superfœtation, when one living child

has been born, and birth has been given to the second some time subsequently to that of the first, I have found that there is a tendency to some multiple of the catamenial period in the interval between the birth of the two children. Dr. Fleetwood Churchill has given an account of the three most remarkable cases of superfœtation on record; and I proceed to an analysis of these cases, quoting the words of Dr. Churchill:—

"In the 'Recueil de la Societé d'Emulation,' there is the case of M. A. Bigaud, of Strasburgh, aged thirty-seven, who was delivered of a living child on the 30th of April. The lochia and milk were soon suppressed. On the 17th of September of the same year (i. e. about four months and a half after the first delivery) she brought forth a second apparently mature and healthy child." The first labour occurred on the last day of April, so that we have the thirty-one days of May, thirty days of June, thirty-one days each of July and August, and seventeen days in September, in all one hundred and forty days from the first to the second birth, or exactly five catamenial periods, $5 \times 28 = 140$. In a case related by Desgranges, of Lyons, to continue the account of Dr. Churchill, "the woman was delivered on the 20th of January, 1780, of a seven-months' child, and on July 6th, 1780, five months and sixteen days after the former birth, she gave birth to a second, which had apparently reached its full time." In this case we have eleven days in January, twenty-nine in February (it being leap-year), thirty-one in March, thirty in April, thirty-one in May, thirty in June, and six in July, between the two births, in all one hundred and sixty-eight days, or precisely six catamenial periods, $6 \times 28 = 168$. The third case noted by Dr. Churchill is as follows, from the account of the late Dr. Maton, in the fourth volume of the 'Transactions of the College of Physicians;'—"Mrs. T——, an Italian lady, but married to an Englishman, was delivered of a male child at Palermo, Nov. 12th, 1807. On the 2d of February, 1808, not quite three calendar months after the preceding accouchement, she was delivered of a second male infant. Dr. Maton assured Dr. Paris that 'both the children were born perfect;' the first, therefore, could not have been a six-months' child." If we include the day on which the first child was born, the time between the births amounts to eighty-three days, or within one day of three periods of twenty-eight days. In these cases it is impossible not to recognise the close adherence to the ovarian periodicity, and it is difficult to imagine that this could be a mere coincidence. All such facts militate against the supposition that the irritation of the uterus by the mature fœtus and its membranes induces labour; and support the view that it is excited by extra-uterine and ovarian influence. There is also another class of facts which tell against the hypothesis that labour depends solely upon the maturity of the fœtus and the placenta and membranes, and as a consequence in favour of the ovarian periodicity. Instances are frequently met with in which the placenta becomes prematurely mature and caducous, or affected with degeneration, and the child dies in utero shortly before birth. It is well known that in certain women this happens many times in succession, the placenta becoming ripe, and positively unfit for the performance of its functions, without exciting the uterus to expel its contents. It is difficult or impossible to account for such cases on the supposition that the mature ovum excites the uterus to the efforts of labour. It is not that there is any special adhesion of the placenta and membranes to the uterus in these cases; for if the fœtus lives in a feeble condition up to the time of labour, it separates from the uterus with the first pains, and causes the death of the child. On the other hand, labour comes on just as regularly in cases in which the placenta has adhered so firmly to the uterus, in consequence of inflammation, as to require mechanical detachment after labour.

In 1850, I performed some experiments, with a view to determine the possibility of exciting the uterus to contraction by irritating the ovaria. In these experiments I had the valuable aid of the late Mr. Henry Smith, who assisted Dr. Marshall Hall in his great course of experimental inquiry. We found that in *gravid* rabbits chloroformed, and with the abdomen laid open, irritation of the *ovaria* by galvanism, a heated needle, or pinching with the forceps, excited distinct *contractions* of the uterus and vagina. In the rabbit at the middle period of *gestation*, after a few contractions of the parturient canal had been excited artificially by irritation of the ovaria, the intermittent contractions of ordinary parturition

went on until the fœtuses were expelled, artificial parturition being thus excited by ovarian irritation. Berthold experimented upon animals during gestation by extirpating the ovaria, and found that this operation invariably led to abortion. I have heard that Dr. Simpson a few years ago performed some experiments with a different result from those of Berthold, but I believe those experiments have not been published. In my work already referred to, I have shown that in many of the lower animals, ovulation and œstruation are going on at the time of parturition, and that many of them admit the male, and conceive again on the same day that the uterus has been emptied.

I have thus advanced, and I trust impartially, the arguments and facts for and against the theory of the ovarian cause of labour, which I believe I was the first to propound. I have for many years taught that the ovaria, acting at or near the tenth period from the time of the ovulation which has ended in impregnation, excite in the uterus those changes which lead to the expulsion of the ovum. I have also compared the show which accompanies parturition, and the lochial discharge which follows it, to the menstrual discharge. It has appeared to me, that the changes in the uterine portion of the membranes are similar to the changes which occur in menstruation, and that the contractions of the uterus resemble those more imperfect contractions which occur in many women at the catamenial periods, and which we do not hesitate to refer to the ovaria. I believe there are some facts which do not admit of explanation upon the supposition that the cause of labour depends on the maturity of the ovum; as for instance, the occurrence of uterine contractions at the end of gestation in cases of extra-uterine fœtation. I believe, on the contrary, that the facts which appear to militate against the ovarian theory, most of them admit of explanation.

In a practical point of view, we may consider that the average duration of pregnancy is about 280 days from the date of the last catamenia, or about 274 or 275 days from the time of coitus, when this can be ascertained. As the date of fruitful intercourse can only be known in rare and exceptional cases, we are compelled to date from the last catamenia,—the point which, from time immemorial, has been the foundation of the calculations of women and their attendants. I constructed the Periodoscope upon the data that conception generally occurs a few days after the completion of a catamenial period, and that labour may be expected on some day of what would have been the tenth period, had pregnancy not intervened. I have now for some years used this instrument in practice, and found the results generally correct. It is at the same time a mode of calculation and a diagram of pregnancy.

Those who calculate from the last menstruation, and those who date from conception, may equally use the periodoscope. The cases in which the date of fruitful coitus can be known are rare, and for practical purposes the few days succeeding the last menstruation may be taken as the date of the event.—*Lancet, March 29, 1856, p. 331.*

MISCELLANEOUS SUBJECTS.

142.—ON DILUTION AS A PRINCIPLE IN THERAPEUTICS.

By Benj. Bell, Esq., Edinburgh. (Read before the Medico-Chirurgical Society.)

[In the administration of remedies of a metallic nature, we may err in not having them sufficiently diluted. Our purpose should be to gain ready entrance for them into the blood: take for example iron. We know that the entire blood of an adult does not contain more than 30 grains, and that this is deficient in anæmia. But what use can there be in giving such large quantities when so little is required? Our doses, then, ought to be small in quantity, and amply diluted. We may learn the same lesson by examination of medicines prepared for our use in the great laboratories of nature. The famous spring at Pyrmont contains about half a grain in the pint of water; that at Tunbridge Wells only about one-third of a grain; the same also in the bromine and iodine springs of Kreuznach; they exist under the same condition of remarkable dilution. But we cannot doubt their virtue in glandular swellings and scrofulous diseases. May we not, then, take a hint from nature, and prescribe our metallic preparations in smaller doses and largely diluted?]

Of late years, I have seen reason to believe that all the benefit derivable from certain metals, as remedial agents, may be secured by comparatively small doses, provided that they are sufficiently diluted. I have seldom trusted to what could be called very minute doses; but, so far as my observations go, I have a strong impression that, within certain limits, we do not increase the efficacy of such medicines by adding to the quantity prescribed. For example, eight or ten drops of the muriated tincture of iron in a large glassful of water, will, if useful at all, do as much good to our patient, as double or treble the quantity. And a similar remark applies, in my opinion, to the iodide or bromide of potassium, a single grain, or at most two of either, in a glass of water, being capable of effecting all the benefit of larger doses. We have already seen that the natural springs of world-wide celebrity present these ingredients in the proportion of one-third of a grain to sixteen ounces, and therefore we shall probably find, upon more extended trial, that corresponding doses of our pharmaceutical preparations, similarly diluted, will answer every purpose.

It may be observed, in passing, that although no strictly analogous argument, furnished by the chemical composition of natural springs, can be urged in regard to the administration of antimony, the principle of dilution is probably no less applicable to that important remedy. Without venturing to speak very dogmatically on the subject, I have a pretty strong conviction that we both increase its remedial power and lessen its tendency to cause sickness by diluting our antimonial solution. Many practitioners suppose, that without the production of nausea, we miss our object in subduing pulmonary inflammation, the principal disease for which that metal is prescribed; but I doubt the soundness of this view, and am inclined to think that every object may be gained without sickening our patient, just as iron and mercury can produce *their* curative effects without the former causing headache, or the latter salivation. Our aim should be to bring the antimonial into contact with the capillaries of the inflamed part, and this, probably, will be best promoted by presenting it in a form fit for immediate absorption into the circulating fluid. When this is attended to I find it seldom necessary to give more than the sixteenth or twenty-fourth part of a grain of tartrate of antimony in successive doses.

Another *à priori* argument, in favour of this practice, may be adduced. Unless a metallic medicine be administered in a state of proper dilution, *that condition* will be secured by the secretion of more or less fluid within the stomach itself, in order that the foreign matter may be in a fit state for being taken up and appropriated by the blood. But it is evidently desirable that this secreting process should be kept within as narrow bounds as possible, in every case standing in need of tonic remedies, and therefore, if it can be rendered unnecessary, even in part, by previous dilution *ab extra*, we secure an advantage for our patient. If,

however, we still adhere to large doses of the active ingredient, it is obvious that, in order to effect the necessary dilution, we must increase the entire quantity of liquid so enormously as to oppress the stomach, and derange the digestive process.

Other advantages of moderate doses, largely diluted, taking their efficacy for granted, will be readily admitted; for besides being less hurtful, it may be, to the teeth, they are also less unpalatable and better adapted on that very account for being taken and digested with the food, a point, the importance of which has been long fully recognised by practical men. That this last advantage is not imaginary, may be gathered from our familiar experience regarding the chloride of sodium. Mixed with the food at meals, although useful in helping digestion, it has no aperient action; but the same quantity dissolved in water, and swallowed when the stomach is empty, before breakfast, will almost certainly open the bowels. In the former case, it is absorbed gradually in company with the food; in the latter, being presented too abruptly and strongly to the fastidious capillaries of the portal system, it is rejected by them, and hurried onwards through the canal, from convolution to convolution, and hence its qualifications as a purgative. But, if the solution be a concentrated one, it will probably never reach the bowels, but act as an emetic, and be rejected at once from the stomach. And cases are met with, in the annals of toxicology, where death itself was occasioned by large and irritating doses of common salt. Supposing it, however, to act as a purgative, the explanation of its action given seems preferable to the *endosmosis* theory, which appears to be too mechanical, and ignores entirely the vital affinities and endowments so conspicuous in the living body. We have supposed the solution of chloride of sodium to be moderately concentrated, like sea-water, or in the proportion of about a drachm to four ounces; but, if we double the allowance of water, we shall probably find that the action is no longer purgative, but diuretic. The salt has entered the circulation and will be eliminated by the kidney.

It may be objected, perhaps, to the principle we are advocating, that it takes for granted that the whole of the medicine swallowed is absorbed and received into the blood, whereas, allowance should be made for a great part of it passing through the alimentary canal unchanged, and more, therefore, ought to be administered than we can expect the system to appropriate. That this superfluity does exist, when large doses are given, we have already suggested, and also that it is probably a source of injury to the patient; but the likelihood of such being the case, is obviously much less when the dose is small and well diluted. Moreover, we are very apt, I suspect, to over-estimate the quantity of any foreign substance which is needed, in order to act upon the human body.

I have repeatedly seen so small a dose as the eighth of a grain of extract of belladonna taken into the stomach of a young person, cause full dilatation of the pupil. Now, if we only consider how extremely minute must be the portion even of this very small dose, when circulating through the blood-vessels, which could come into contact with the nerves of the iris, we may form some conception of the susceptibility and delicacy of our frame. To take another illustration, let us consider the remarkable efficacy of the muriated tincture of iron in erysipelas, or in acute desquamation of the *tubuli uriniferi* following scarlet fever. An adult is labouring under the former of these complaints, with much febrile disturbance, as indicated both by the hot dry skin and the frequent bounding pulse; we administer ten drops of the tincture every two hours, and after two or three doses, as I have often seen, the symptoms give way, the skin becoming moist and cool, the pulse slow and soft. A *few* grains of iron, at the very most, have mingled with the circulating blood, and of these a mere fractional portion has reached the congested capilliaries of the inflamed region, and occasioned the favourable change, and in this way, a comparatively small dose of a substance confessedly foreign to the system, comes to fulfil the purpose we have in view with all the efficiency of a larger quantity.

A boy of ten years, we shall suppose, who has recently passsed through an attack of scarlet fever, is observed to have œdema of the eyelids, a furred tongue, and a full febrile pulse. His urine is of a dingy colour; it deposits a dark sediment, and is scanty and albuminous. Five drops of the tincture of iron in a glass of water, are administered every four hours; a speedy improvement commences, and in two or perhaps three days, the symptoms are entirely gone.

Such facts, besides enforcing the principle we have been inculcating, should teach us to deal tenderly at all times with an organization so finely constituted, and to administer our remedies under a more settled conviction that, if potent for good at the right time, they may also be potent for evil, when the case and the occasion are not favourable.

One may express himself in this manner, without verging in the very least towards the credulity of those persons who profess their faith in the power of infinitesimal doses. It is one thing to recommend half a grain in preference to five, and a very different thing to stand up, with unabashed countenance, for the millionth or billionth of a grain. The human mind is baffled in forming even a conception of such infinitesimal quantities; and, therefore, they may be placed in a category by themselves, for the use of those who take pleasure in believing everything that ordinary people are compelled to doubt. But is there no truth in the allegation, that some of our large doses of remedies, intended to enter the circulation and mingle with the blood, must startle and stagger many reverential students of the human frame and functions, and so create, it may be, a hurtful reaction in favour of homœopathy, and other kindred eccentricities?

I would venture to suggest, that some topical appliances—those especially of a discutient nature—may be rendered more efficacious and useful, by attending to the same principle of ample dilution. For example, the most efficient mode by far in my experience, of employing iodine locally, is a solution, consisting of two grains of iodide of potassium and one of iodine, in an English pint of water. It must be used warm, as a fomentation to the affected part, by means of a sponge, twice or thrice a day, for five or ten minutes at a time. In cases of glandular tumour and of fibrinous exudation into the cellular tissue; in chronic enlargement of the testicle or epididymis; in short, in all that class of disorders where iodine or mercurial ointment would seem to be indicated, I have often found it remarkably efficacious. The warmth of the application renders it more agreeable to most patients than if it were cold or unctuous, and at the same time probably increases its power by relaxing the pores, and so favouring absorption. It seems to be much preferable to the tincture of iodine painted upon the surface—a favourite remedy with many. The latter certainly does good in some cases, but we may doubt, I think, if it produces its beneficial effects in the manner usually attributed to iodine and its compounds. It is a strong stimulating fluid, and sometime occasions a good deal of local suffering; so that, when attended by favourable results, it probably resembles in its action a common blister, or the croton-oil ointment, and relieves inward congestion or chronic inflammation *indirectly*, by its power as a counter-irritant, and not *directly*, by hastening the process of absorption. The distinction is not unimportant; because some swellings, of inflammatory origin may reasonably be expected to give way under a system of counter-irritation; while other growths, of a slower and colder constitution, will be more amenable to a treatment less active and heroic.

Another illustration of the same principle seems to be afforded by the outward uses of croton oil. When employed in a form tolerably concentrated, it induces, as we all know, an eruption of minute vesicles; but when mixed with a large proportion of olive oil, and rubbed over an extensive surface, such as the abdomen, it sometimes shows its power as a purgative, in the most unequivocal manner. One case in particular, that I attended with the late Dr. Thatcher, occurs to me, in which this treatment was eminently successful. A young gentleman seemed to be dying of obstruction in the bowels. As all the ordinary means of relief had been exhausted, and circumstances forbade the farther use of internal remedies, a liniment, composed of one part of croton oil and twenty-four of mingled olive and camphorated oil, was used as an embrocation to the belly; and very speedily, and in consequence, as I believed at the time, the peristaltic action downwards was restored, and the obstruction overcome. Of course, we may have mistaken in this, as in other cases, the *post* for the *propter hoc;* but such facts seem to suggest the propriety and desirableness of new experiments in the same direction.

The spiritus terebinthinæ is another local remedy which we may probably employ with advantage, in a less stimulating shape than we are in the habit of doing. This has been suggested to my mind by witnessing the beneficial effects of small

doses of turpentine in certain forms of iritis, and in rheumatic ophthalmia. In exercising these curative effects upon textures so remote from the stomach, the medicine must be supposed to enter the vascular system, and to modify the blood by stimulating one or more of the organs of excretion; and it is reasonable to infer, therefore, that the well-known remedial power and efficacy of terebinthinate embrocations in certain chronic forms of muscular rheumatism and neuralgia, *may* depend very much upon a similar therapeutic action. And on this supposition, we should take care that the local remedy is not presented in a form too stimulating, our object being, not so much to cause counter-irritation by it, as to secure its absorption by the integuments covering the seat of pain.—*Edinb. Med. Journal, Jan.* 1856, *p.* 632.

143.—*Formulæ for the Administration of Chloroform.* By M. Dannecy.—M. Dannecy employs oil to dissolve the chloroform. The formula he uses is as follows:—Take of pure chloroform, 2 grammes; oil of sweet almonds, 8 grammes; gum arabic, 4 grammes; syrup of orange flowers, 30 grammes; distilled water, 60 grammes. Mix the oil with the chloroform, and make with the mixture an oily draught, in the ordinary way. When gum alone is employed to suspend chloroform in a draught, separation of the latter sooner or later takes place; and where alcohol is used as by many practitioners, in proportion of one part chloroform to four parts alcohol, an excitant is introduced which may not be desirable, and if the quantity of chloroform prescribed be considerable, this objection is a serious one. The advantages which M. Dannecy sees in his formula are,—1. That a perfectly homogeneous and stable mixture is produced, whatever be the proportion of chloroform prescribed; 2. That no excitant like alcohol is introduced into potions which are most frequently intended to be calmative; 3. That it dispenses with every kind of precaution on the part of the patient, or those who have the care of him in administering the remedy. He thinks further, that the mixture of the chloroform with oil, without any detraction from the limpidity of the latter, is a test of the purity of the chloroform.

The Commission of the Société de Pharmacie, while admitting M. Dannecy's formula as rational, proposes the following:—Chloroform, 2 or 4 grammes; sugar, 12 grammes; gum arabic, 5 or 10 grammes; water, 100 grammes. The chloroform is added to the sugar in a mortar, then the gum is added, and lastly, by degrees, the water. M. Deschamps, in commenting on the several formulæ which have been suggested, considers that of the Commission as preferable both to that of M. Dannecy and of M. Wahu, who dissolved chloroform in three or four parts of alcohol, and then mixed it with a solution of gum, on the ground that submitting all patients to the action of much alcohol or oil is not a matter of indifference. It is true that, after a time, a whitish flocculent deposit takes place, but a little shaking restores the appearance of the mixture. M. Deschamps proposes another formula—viz. Chloroform, 2, 4, 6, &c. grammes; syrup, 30 grammes; yolk of one egg; water, 150 grammes. Dilute the yolk of egg with the water, and strain; weigh the syrup, then the chloroform; add the strained liquor, and shake the whole together.—*British and Foreign Med. Review, Jan.* 1856, *p.* 236.

144.—*Fibrous Tumours connected with the Prostate.*—Prof. Fergusson states that an important circumstance connected with lithotomy is, that not unfrequently, in extracting the stone, and without any undue violence having been used, a portion of prostate gland would protrude before it. Formerly he had been in the habit of attempting to avoid the removal of such portions, but finding that no inconvenience resulted from the practice, he had latterly adopted the plan of always removing them. He thought they were probably tumours connected with the prostate, and not parts of the gland itself.—*Med. Times and Gazette, Dec.* 15, 1855, *p.* 610.

145.—*Mode of Administering Phosphate of Lime.*—The insolubility of phosphate of lime has led to its disuse by many practitioners. According to M. Küchenmeister, of Zittau, this objection is removed by uniting the phosphate with carbonate of lime, and then adding an acid, when a soluble combination and a useful medicine results. The proportions recommended are,—carbonate of lime, 8 grammes; phosphate of lime, 4 grammes; sugar of milk, 12 grammes. M. Küchenmeister sometimes adds from 1 to 2 grammes of lactate of iron, and directs three pinches of this powder to be taken at the commencement of a meal. The object of the addition of carbonate of lime is to favour the solution of the phosphate. Under the influence of the lactic acid or of the hydrochloric acid present in the alimentary canal, carbonic acid is disengaged, and renders part of the carbonate soluble. The sugar of milk is intended to furnish lactic acid. Finally, the author remarks that the presence of albuminates is necessary to determine the solution of the phosphate of lime, a condition which is present when administered with the food.—*British and Foreign Med. Chir. Review, Jan.* 1856, *p.* 239.

146.—ON THE APPLICATION OF STATISTICS, TO QUESTIONS IN MEDICAL SCIENCE, PARTICULARLY AS TO THE EXTERNAL CAUSES OF DISEASES.

By Dr. W. P. Alison, Emeritus Professor of Practice of Medicine, Edinburgh.

[The knowledge of the external causes of diseases is that which leads most directly to their prevention. It is simply by the force of numbers that we have learnt how the poison of small-pox may be diffused, and that it may be disarmed of its power over the human body. So also with respect to the extension of another epidemic, the puerperal fever. We now possess information which enables us to predict that its propagation may hereafter always be prevented. The observations of Dr. Semmelweiss in the great lying-in hospital at Vienna, where upwards of 6000 births take place in a year, have unequivocally shown]

1. That this disease is, in fact, a case of the Diffuse inflammation or Erysipelas, attended with the same peculiarities in the extension of the inflammation, and in the nature of the effusion, and the same variation as to the nature of the accompanying fever in different epidemics.

2. That one immediate exciting cause of this form of inflammation, which may always be suspected when it prevails epidemically, is the *cadaveric* poison,—often evolved, during the decomposition of the human body, from whatever cause death may have taken place; but during one stage of that decomposition only, viz. that early stage during which the *post mortem* inspections for the investigation of the cause of death are most frequently made.

3. That when this form of inflammation assumes the form of epidemic puerperal fever, the mode of its transmission from one patient to another is by accoucheurs or nurses, themselves in good health, but to whose persons or clothes minute portions either of the *effluvia from others* already affected, or of this *cadaveric poison*, have become attached; and

4. That when the obvious precautions are taken, to prevent any persons to whom, in either of these ways, the poison can have thus adhered, from acting as accoucheurs or nurses until effectually purified, no "epidemic extension" of puerperal fever is seen.

It is seldom, no doubt, that this last proposition can be submitted to so searching a scrutiny, as in the year 1846, at the Vienna Hospital, under Dr. Semmelweiss, when the number of deaths, after these precautions were adopted, was diminished by no less than 400 in that hospital alone, and in a single year; but when it is added, that each of the propositions above stated is quite in accordance with observations made and recorded (although the bond of connexion among them had unfortunately not been duly observed) in this country, whenever puerperal fever has been epidemic, whether on a large or small scale,—so that it would be easy to collect statistical evidence of the same kind from every such epidemic, wherever any record of the facts has been left, to establish each of these proposi-

tions,—the force of this statistical evidence becomes such as to justify the sanguine anticipation above announced.

Our information as to the mode of extension of the malignant cholera, is, unfortunately, as yet less certain or precise; yet I think we may say it is so far advanced, that we may entertain a confident *hope* of its being very soon such as to disarm any epidemic cholera, in this climate, at least, of all its terrors.

I allude to that subject here, chiefly because I think it affords an example worthy of notice, of what I have already stated, as to the frequent misapprehension of the strength of evidence, simply empirical, or founded on statistics, which may often be obtained in inquiries of this kind.

I mentioned formerly in a paper on this subject, which I had the honour of laying before this Association at Birmingham, a *single case* which I saw in the year 1832, and which I have always maintained to have been sufficient, for any one who duly attended to the statistical evidence it afforded, to establish the proposition, that the disease is capable of propagation in this climate, by the intercourse of the sick with the healthy, without pledging us to any opinion as to the mode of communication, or as to the existence of other modes. Now that it is generally admitted, that the assertion then made was correct, the question for discussion now being (as stated by the editor of the 'British and Foreign Medical Review'), "*not* whether cholera is contagious or not, but *how often* it spreads *by the agency of human bodies* (i. e. by *contagion*), and how often without that agency" (Journal for January, 1854, p. 298), I think myself justified in drawing attention to the grounds on which it was made; and which I still think amply sufficient to establish that mode of communication, without, of course, excluding others.

The reason of this strong expression of opinion was, that the case furnished a remarkable example of the evidence which, according to what was formerly stated, a single *positive* fact may afford,—quite of the nature of the *instantia crucis*, when supported by a large body of *negative* observations. The anxious expectation of the disease in the town, in 1832, the careful division of the town into districts, and appointing of stations and medical men to each, and the number, zeal, and intelligence of these observers, were known to be such as to justify our saying, that this was the very *first* case of the disease which ever originated in Edinburgh or Leith, in a person who had not left the town; and that for a time it was *an isolated* case, no other appearing for ten days, in a population of above 140,000 persons, many of whom were in circumstances, in all other respects at least, equally favourable to the appearance of cholera, as this woman was;—as the subsequent appearance of the disease in many of them, during nearly a year that the disease afterwards existed in Edinburgh, proved. If the poison producing this "*nova pestis*" had no contagious property, this woman was not more exposed to it than any other of this large body of people; but if it had that property—in whatever other way it might be communicated—she was undeniably and peculiarly exposed, as she was engaged in nursing her son, in a close confined room, who was ill of the symptoms of cholera, during the whole of the day preceding that in which she sickened and died; and he had passed the next preceding night in a house in Musselburgh, where patients in the malignant disease then were, and had been for weeks previously. Here, then, was a fair *instantia crucis*, to determine whether the transmission of the disease, from place to place, known to be at that time a frequent event, was or was not dependent on intercourse of healthy persons, with those previously sick of it; and the affection of this one person, who had that intercourse, contrasted with the non-appearance of the disease in the 140,000, was, as I maintain, *decisive* evidence.

Many cases, equally decisive, have since occurred, of which I have been informed, on the *first* appearance of a disease *previously unknown* in a town or district, carefully observed;—*e. g.* at Arbroath in 1853, where there was clear proof that the two first persons, of 15,000 inhabitants of that town, who took cholera, "had just returned from Dundee, where they had visited persons ill of cholera; their affection, therefore, proves nothing as to the efficacy of intercourse with the sick, in exciting the disease, rather than merely visiting a particular locality;—but the next *six* who took it in Arbroath,—the *first six* inhabitants of that town who took cholera without leaving the town, had repeated and close intercourse with those already affected before they took it; and the inference as to the contagious

property is drawn, not from their taking the disease, nor even from their taking it at that time, and in rapid succession, but from their being *the only inhabitants of* Arbroath who took it, during the first week of its existence in that town;—*i. e.* the positive evidence of the *six* who were known to be exposed to that cause, is supported by the *negative* evidence of the *fifteen thousand* who could not be shown to be, and the immense majority of whom certainly were not, so exposed.

I have great hopes that we shall soon have statistical evidence to establish a proposition which no other evidence known to us could justify our admitting, but which, if established, would not only reconcile most of the conflicting statements on this subject, but serve as a guide to almost complete security from any epidemics of this disease in future; viz. that the poison of cholera, *like other known animal poisons*, is developed during the decomposition of the animal matter, the appearance of which is most characteristic of the disease,—that which constitutes the "*rice water stools*,"—but only in a *particular stage* of that decomposition, not immediately after its formation in, or discharge from, the body; and again, not after the decomposition has gone to a certain length. All this can be proved only by statistics, but is quite susceptible of proof in that way. The last proposition above stated—that no poisonous property is attached to any part of a body dead of cholera, after a certain stage of decomposition has been passed, seems nearly ascertained from the number of instances in which dissecting-rooms have been supplied with bodies of persons dead of cholera, for many weeks together, without any of the students attending them being affected. That the peculiar matter of the cholera evacuations, during its decomposition, perhaps especially in dry air, has a peculiarly poisonous quality, was, I believe, first suspected by Liebig, and partly by the analogy of the poison already mentioned, causing erysipelatous inflammation and puerperal fever,—and also of the *sausage poison*, repeatedly observed on a large scale in Germany, which is developed during a certain stage of the decomposition of the animal matter of those sausages, and disappears when their putrefaction has so far advanced. That the cholera can be communicated to animals by inoculation with this matter of the peculiar rice water stools, has been sufficiently proved by the experiments of Dr. Lindsay in this country; and if a few more experiments shall give results similar to those of M. Thiersch, at Munich, I think we may assert that the proposition above stated, is *statistically* proved. "Dr. Thiersch collected the intestinal contents, or the evacuations, of cholera patients, and let them decompose under the influence of air and heat. From day to day he dipped into this matter pieces of filtering paper, which he dried, for subsequent experiments on white mice. Two of these animals at a time were exposed to infection for four days, by having a square inch of the filtering paper, thus prepared, moistened with water and mixed with their food. Each mouse took thus, 1-2000th gr. daily. The results were as follows:—The preparations from the matter during the first day of decomposition were *innocuous*. To this succeeded a period of from six to nine days, during which decomposition went on, and preparations from the matter in this second period of decomposition, caused disease in 80 out of 34 animals, and death in 12 of the 34. The symptoms were peculiar and characteristic. The hair fell off, the ears dropped, there was languor, then discharge from the bowels, first of white, then watery matter, the urine lost its smell, then was suppressed, the appetite became *depraved*, so that the animals would fill their stomachs with wool; there was no apparent sickness, but such tonic muscular contractions that they seemed dead some time before death. On dissection, accumulation of blood in the vessels of the small intestines was invariably found, their contents *watery*, with *abundant epithelial flakes* (just similar to those found in persons dead of cholera); the cortical substance of the kidneys passing into fatty degeneration, the bladder empty, the blood and the contents of the intestines answering to the test of ready mixture with amygdalin, as in the cholera of man,—which will not appear in the healthy animal. To this a third period of decomposition of the matter under trial succeeded, in which these poisonous effects were very slight, or not observed at all."—(See 'Medical Times and Gazette,' Nov. 25, 1854.)

We have already a statement by Dr. Budd, of statistical observations made on *villages in* England, where the entrance of cholera appeared to be prevented by *such* expedients as these observations immediately suggest, for receiving the rice

water evacuations of cholera patients on linen or cotton, and burying or burning, or otherwise effectually destroying their substance, during that period, thus indicated, after they have been passed, and before they have entered on the morbific decomposition; and we have sufficient statistical evidence of the importance of another measure,—which was first adopted, I believe, at Edinburgh, in 1832, and has since been recommended by the Board of Health in London, and adopted in different places, although not so generally or satisfactorily as could be wished,—founded on the merely empirical statements I have made as to the communication of the disease from the sick to the healthy, and its apparent adhesion to particular, often very limited, localities, viz. the establishment of *houses of refuge*, for the reception of all inhabitants of houses or rooms which might become infected with cholera in any town; not themselves affected, nor required for the care of the first cases that might occur. Here such persons might be lodged in pure air, regularly fed, preserved from cold and from other (frequent concurrent) exciting causes of the disease, and treated with due attention to cleanliness, immediately on any symptoms of cholera showing themselves. The London Board of Health report, that they had information of 1691 persons taken into these houses of refuge, from rooms where there were patients in cholera, and of these, only 33 became affected with cholera, and only 10 died. In cases of which I was myself informed, in Edinburgh, at Glasgow, and at Oxford, during different epidemics, 1010 persons were admitted from sick rooms into such houses of refuge, of whom 40 took the disease, and 15 died; whereas the experience of Dr. Hamilton, of Falkirk, of 251 cases of cholera appearing in 86 houses, where no such means of separation existed, gives only a fair idea of the extent to which successions of cases will often be observed, in confined air and dirty districts, possessing no such resource.

I am happy to say, that so far back as November last, having written to Dr. A. Smith, at the head of the medical department of the army, on the subject of the decomposition of the rice water stools, as the probable cause of the propagation of cholera, and of districts becoming *tainted* with the poison of that disease,—I was informed by him that he had directed the attention of the medical officers in the Crimea to the facts now stated, so that if the disease shall appear in a malignant form in that army, we may hope for at least accurate and truly statistical information as to the reality of that opinion.

Again, as to the Yellow Fever so frequently becoming epidemic in the hot climates, although we cannot boast of having acquired information either as to the nature of its cause, the essential character of the morbid change it produces, or the power of any remedy over it,—yet by simply empirical observations, *i. e.* by statistics, we have information to the following effect, as stated in reports in Germany and France, on inquiries conducted by order of those governments, on a larger scale, and considered by committees containing the names of Humboldt and Dupuytren, that it is a disease *endemic*, almost exclusively, "in districts nearly on the level of the sea, never appearing beyond 48° of north latitude, nor without a previous temperature of 72°,—only in certain circumstances propagated by contagion," but when epidemic, always *confined strictly to certain localities;* so that the practical rule of immediately evacuating, *i.e.*, removing *all* the inhabitants of places where it is declared to exist, and has formerly prevailed, is *incontestable*, and "of such proved utility, as will always justify its vigorous execution."

Without dwelling farther on the effects of malaria, in this or any other climate, which we can only expect to be satisfactorily explained when pathology shall be considerably more advanced than at present, I may merely add, that such collections of facts have been made and are now frequently repeated, as to the places and circumstances in which it arises from the earth, and the laws according to which it extends and multiplies,—considered merely empirically or statistically,—as we may confidently expect to be successful in disarming this cause of disease likewise of its terrors, long before the nature of the change produced by its action on the living body, or the rationale of any line of treatment of those who may be affected by it shall become known.

The case of Epidemic Scurvy, resulting in different cases, as is now satisfactorily established, from different deficiencies in the diet habitually taken,—the efficacy, therefore, of different kinds of diet in counteracting this form of disease,—still more remarkably, the power of small quantities of vegetable acids in producing

the same effect, and the extraordinary rapidity with which such changes of diet and these acids will produce their effect,—may also be stated as examples, on a large scale, and of the most satisfactory kind, of what is generally called the power of art over a most loathsome and virulent disease—but in reality must be regarded, now and probably long after our time, as results obtained by simply empirical observations of the course of Nature, statistically arranged, fortunately facilitated by so many of the subjects being organized bodies of men;—and which have distinguished the present age to a degree, which those who are not familiar with the medical writings of the last century will hardly conceive.

We have good reason to hope, that the inquiries now on foot as to the external causes of Scrofulous, or of what is now usually called tubercular disease, including pulmonary consumption,—an inquiry which we must perceive to be more complex, and in which the operation of various causes must be recognised,—will be effectual in pointing out the means of counteracting that tendency in a very large proportion of cases of persons liable to it,—simply on the principle of empirical observation, enlarged and arranged in the form of statistics, long before we shall have information as to the essential nature of the vital process, or mode of operation of the causes in question.

In illustration of this, I need only mention two facts, recently ascertained on so large a scale, that we have no doubt of their truth and importance, and which, even at present, may be said to be guides to successful practice in many cases only recently thought hopeless, although all that was previously known on the subject was certainly rather averse than favourable to the supposition that they would ever be established. These are,—1. The good effect of cod-liver oil—if not of other animal oils, on many cases of tubercular disease, in their early stage—provided only that it can be retained on the stomach to the extent of an ounce and a half or two ounces daily; and, 2. The almost complete exemption of the inhabitants of the Faro Islands from tubercular disease, notwithstanding that their climate, as regards cold and damp, is exactly that which, in this country, has been thought most favourable to it.—*Edinburgh Medical Journal, Nov.* 1855, *p.* 385.

147.—ON THE PHYSIOLOGICAL AND THERAPEUTIC EFFECTS OF THE CHLORIDE OF AMMONIUM.

By Dr. Alexander Lindsay.

[Muriate of Ammonia, or sal ammoniac, is a substance which is seldom given internally in British practice. It possesses considerable therapeutic power, and is extensively used on the continent, especially in Germany.]

Iodine, bromine, and chlorine are readily distinguished the one from the other; yet, in some respects, they are physically allied, and they are so closely related chemically, that they have been grouped as a family. Further, there is a marked similarity as regards the therapeutic effect of the salts, resulting from their union with metals. These considerations, coupled with the assumed nature of the basyl ammonium, would naturally lead to the conclusion that the action of the chloride, in diseased states, would be of a character similar and equal to others held in higher repute; my own experience of the salt has shown such to be the case.

It may be useful to refer briefly to the physiological actions of the medicine under consideration. A knowledge of these cannot, it is true, serve as a guide to its employment in disease, yet it will enable us to measure its influence on the system, and to conclude in a general manner as to its therapeutic action. For where a physiological change in any given case is not observed, but little alteration is to be expected in morbid conditions.

The information possessed regarding the actions of the chloride on the healthy body is very limited. Pereira's 'Elements of Materia Medica' contains all I have been able to glean on the subject. The statements there, however, refer to large doses; that author remarks as follows:—"Its local action is irritant. Its chemical influence is not very obvious. It dissolves mucus, but does not coagulate albumen. Weber tried the salt on himself. He took from ten to twenty grains for a dose, which he repeated at the end of an hour. The effects were a sensation of

warmth and oppression in the stomach, headache, and increased desire of passing urine." So far as I am aware, the influence of medicinal doses, continued for a certain time in healthy individuals, has not been recorded. I was anxious to ascertain this, and have been aided in the inquiry by two intelligent pupils, who willingly agreed to subject themselves, along with me, to the action of the chloride. Daily for a week previous to the experiment, the state of the appetite, the nature and amount of the food, the condition of the bowels, the frequency of the pulse, with the amount and density of the urinary secretion, were carefully noted. The medicine was then taken for a week, and similar observations recorded. The amount taken was in one case 18 grains per day, a second 13½ grains, and the third 9 grains. These quantities were divided into three equal doses, and were swallowed dissolved in two ounces of water. No comparison of the results was made till the observations were concluded. The following is a brief summary of these, from the notes now before me:—

On the second day after beginning the medicine, a buoyancy of the system was experienced that rendered ordinary pursuits a pleasure, and fitted body and mind for increased exertion. The uniformity of this result was the more remarkable as the experimenters represent types of the nervous, sanguineous, and lymphatic temperaments respectively. The feeling was least developed in the last. He employed the smallest dose. In all, the appetite was much improved. Where the smallest quantity of the salt was taken, the amount of food was doubled. The feculent discharges were in all much augmented. The mucous follicles of the intestinal tube seemed to be stimulated to a much increased secretion. In two, the force and frequency of the heart's action were diminished. The rate of the pulse in the gentleman employing the smallest dose was accelerated. In all, the chloride increased the urinary secretion. It cannot, however, be classed as a renal hydragogue. The increase of fluid ranged from six to twelve ounces in the twenty-four hours. In the two cases, where the largest and smallest doses were used, it acted as a renal depurant, the excess of solids varying from 70 to 160 grains daily. In the other no change in this respect was noticed; but it may be necessary to remark, that the effect on the bowels appeared to be greatest in the individual making use of the medium dose.

The cases in which I have employed the chloride of ammonium in practice have been limited to chronic diseases, such as result from inflammatory action, or where there is a local ailment existing as the expression of a dyscrasial condition. Particularly, I have prescribed the salt in cases of chronic bronchitis, in enlargement of the lymphatic glands, whether resulting from scrofulous disease or dependent on a syphilitic taint, in chronic skin diseases, and in cases of chronic rheumatism.

The chloride has been, I may remark, exhibited also in acute diseases; in some forms of fever, and in the milder cases of pneumonia. Further, Dr. Watson, in his lectures, has testified as to its efficacy in certain forms of facial neuralgia; and Dr. Ebden, in the 'Indian Annals of Medical Science' for April, 1854, states that it is a powerful and valuable remedy for the relief of neuralgic pain generally. He writes—"In facial neuralgia, tic douloureux, nervous headache and toothache, not excepting sciatica, and even in one case of neuralgic dysmenorrhœa, I have often given it, and been convinced, after a full trial, of its merits."

Of its therapeutic effects in acute diseases, I have no knowledge, nor have I prescribed it in neuralgic affections; but, from what I have seen of its physiological action in small doses, I can readily believe that the quantities prescribed by Dr. Ebden must have had an important influence.

I commenced the use of the salt in morbid conditions of the pulmonary mucous membrane, where the exuded (mucous) secretion was tough and tenacious. In such cases, its action was often remarkable, the exudate becoming speedily altered in quality and consistency. It has probably been from observing this effect that some have attributed to the chloride of ammonium qualities similar to the mercurial preparations. As liquefacients their influence is well known. On this account they are frequently employed. But in cases in which their use is contra-indicated, as frequently happens in chronic bronchitis, I can confidently recommend that their place be supplied by the preparation under consideration, certain that if the case be well chosen, the benefit will soon be apparent, and equally

certain that no prejudicial result will follow its employment. In this respect it differs from the alkalies or their carbonates, the prolonged employment of these disordering the digestive and assimilative functions, and ultimately producing a condition similar to scurvy, the nutrition of the body generally becoming impaired. It is very different with the chloride, its long-continued use never giving rise to symptoms of general cachexia. The testimony of many observers agrees in this.

The efficiency of the ammonium salt, as a remedy in the cases noted, led me gradually to extend its use, and subsequent trials, frequently repeated, have shown that in cases of chronic rheumatism it often proves of great advantage. It is doubtless true we shall be occasionally disappointed. This, however, happens often with our best remedies: but in those forms of rheumatic disease in which there is but little constitutional disturbance—those cases, in short, in which the iodide of potassium is found advantageous—the chloride may be given with every likelihood of benefit. In this affection, I have given the salt a very extended trial; but in recommending its use, I need scarcely hint that it is not to be depended on to the exclusion of those secondary means—warmth, frictions, &c., that form a part of any treatment we may employ. I have also tried the chloride in periosteal inflammation of a chronic character, and having a syphilitic origin. Here its advantages are not so apparent, yet it seldom fails to give relief, and in cases where the iodide of potassium had ceased to exert any apparent influence on the disease, the substitution of the chloride has been followed by a rapid cure.

In enlargement of the lymphatic glands, I have not had such an experience of the use of the chloride as enables me to speak with confidence of its action. Yet more or less benefit will follow its prolonged employment. In that variety of bubo aptly designated indolent, which so often exhausts all ordinary remedies, and frequently our patience, the use of the chloride often speedily effects its removal. I am in the habit here of applying it also externally. A strong solution being employed (℥ii. to the ℥j.), lint is soaked in this, applied to the swollen surface, and covered with oiled silk. In such cases, the general treatment must not be forgotten. The state of the bowels must be watched, and, if need be, corrected, the diet employed being nutritious. Carefully-applied pressure over the swelling is also a valuable auxiliary.

In another point of view, the chloride of ammonium has an advantage. It is cheap. This precludes the likelihood of intentional adulteration. Sometimes it is impregnated with iron, and, it is said, occasionally with lead. As regards the former when present, it exists in such small quantity that it can in no way interfere with its action; and as regards the latter, any samples I have tested showed no evidence of its presence.

By writers on the Materia Medica, the dose of the chloride is stated to be from 5 to 30 grains. The quantity prescribed by me has varied from 5 to 10 grains, three or four times a day. Dr. Ebden, in the paper already noticed, states he employs from 25 to 35 grains in neuralgic affections, repeated at short intervals. I have never given the salt in such doses. His experience, however, accords with my own as to the effect on the system of the quantities I am in the habit of administering. This agreement was to me the more gratifying, as I was not aware of the existence of his paper till these remarks were nearly completed, and it adds to the confidence I have in urging the medicine on professional attention.

The chloride of ammonium may be administered in simple or medicated waters. Where there is evidence of febrile disturbance, small doses of emetic tartar may be advantageously added. I frequently prescribe it with some bitter infusion, as quassia, cascarilla, gentian, &c. In cases where an anodyne may be necessary, the solution of the muriate of morphia may be conjoined in appropriate doses. It need scarcely be added, that the alkalies with the carbonates, as also the nitric and sulphuric acids, are incompatible.

The preceding observations have been limited to a mere narrative of observed results. Any endeavour to explain the nature of the influence exercised by the chloride over the organism has been carefully avoided. To judge of the action or effect of a medicine is always sufficiently difficult, without attempting to accomplish more. Even where the mind is least biassed, the accidental is often apt to be confounded with the essential, and antecedents linked with results with which they

may be but very remotely related. This is not to be wondered at when we think on the very varied influences that combine to modify disease, and, as a necessary sequence, the actions of those agents we employ for its removal. Of disease we know nothing other than what is made known by symptoms and observed structural change, and of medicines only so much as they alter or modify these. Frequently the mind is not content with this, seeking to penetrate further, leaving the true field of observation, and attempting to grasp at what is placed far beyond mental reach. Thus it is that the science of therapeutics has not advanced with that steady onward step which has marked the progress of other departments of knowledge. The properties of matter are studied, the circumstances that modify these observed, and the information so acquired is applied to the purposes of life. The day is past in which it was sought to elicit its ultimate nature or essence. So ought it to be with medicines. Their actions, and the circumstances that modify these, should alone be investigated. The therapeutic power of the mercurial compounds is acknowledged, and every day applied in the treatment of disease; yet how little, how very little, of useful knowledge is to be gleaned by the study of the various hypotheses that have been offered to explain their action.

These remarks may be considered by some foreign to the subject of this paper. They will, however, serve to show why I have not thought fit to attempt to explain the *modus operandi* of the chloride. Of this I know nothing. I have seen its beneficial employment, and presume to think that when in more general use, it will be assigned a position amongst our more valuable alterative, resolvent, and liquefacient remedies.

The following cases are appended in illustration of the effects of the salt. Numerous others might easily have been added:—

Jan. 25, 1855, J. W., hawker, aged 45, has suffered from winter cough for many years. Four days ago was much exposed to wet, and has since been unable to leave bed. When seen, skin hot, tongue furred, urine scanty, and bowels constipated. Pulse 120. Severe cough; scanty expectoration, and complains much of a feeling of constriction of chest. The stethoscope afforded the physical signs usual in bronchitis. Ordered him to be purged, afterwards to have *tart. antimon. et potassæ*, in nauseating doses, and a mustard poultice to chest.

Feb. 2nd. Feverish symptoms gone. Cough still very severe. Complains of great difficulty of getting up the expectoration, which is so tenacious that he has to withdraw it from the mouth by the fingers. Ordered a teaspoonful of the following mixture, four times a day, in water:—

℞. Chloridii ammonii, ʒij.; sol. mur. morph. ʒiiss.; syr. simplicis, ʒvj.; aq. puræ, ℥iv. Solve.

Within twenty-four hours a marked improvement began, which continued till the expectoration acquired an almost watery consistency. Ten days after he was in his ordinary health.

Aug. 15, 1855. Mrs. G., aged 66, has been complaining of cough for some weeks, with slight difficulty of breathing. Is able to move about for the greater part of the day, but complains of weakness and pain, referred to anterior and lower part of chest. Pulse 70. Expectoration scanty and tenacious. Bowels had been freely purged before I saw her. Dry mucous râles heard over upper part of chest. Ordered the foregoing mixture, without the solution of the muriate of morphia.

July 27th. Has still a little cough. Sputa come up freely. Is gaining strength. Has now no pain in chest, and the appetite is much improved.

July 1, 1855. Mrs. ——, married, and has had four children. Contracted syphilis, six months ago, from her husband. Was mercurialised at that time by a surgeon in the country, and used afterwards, so far as I could learn, iodide of potass. She came under my care suffering from constitutional disease, manifesting itself on the skin, with sore throat and severe pain in the limbs. Her appearance was extremely unhealthy. Appetite nearly gone. Bowels disordered.

After touching the throat with the nitrate of silver, and attending to the bowels, she was ordered to sponge the body, night and morning, with a tepid saturated solution of common salt, and to have a teaspoonful of the following mixture three times a-day:—

℞. Chloridii ammonii, ʒiiss.; acid. hydro-chlor. dil. ʒiss.; aq. puræ, ℥ivss. Solve.

Shortly after beginning the medicine she began to improve, and at the end of four weeks all the symptoms had nearly disappeared.—*Glasgow Med. Journal, Oct.* 1855, *p.* 303.

148.—*Iodine Paint with Mastic.*—The following is the formula for an iodine paint, made adhesive by the addition of mastic, which is used at the Moorfields Ophthalmic Hospital:—

℞. Spirit. vin. rect. 3ij.; sp. æth. nitr. 3iv.; mastic. 3ss.; iodinii, ad saturat.

The advantage gained is, that it does not run about the skin so much. Iodine counter-irritation to the lids continues to hold a high place in the estimation of the Surgeons of this Hospital.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 136.

149.—*Bichromate of Potash for Preservative Solutions.*—A knowledge of the virtues of the bichromate of potash as a means of preserving pathological specimens may be acceptable to some of your readers. This salt, in the proportion of about four grains to an ounce of water, constitutes a solution quite equal to alcohol in its antiseptic powers, and which costs only about twopence a gallon. It will deprive a specimen already partially decomposed, of all odour, and preserve it for any length of time. As, instead of hardening, it a little softens tissues immersed in it, it has a great advantage over both alcohol and Goadby's solution, for all objects which are intended to be re-examined, especially if the microscope is to be used. Preparations long kept in it become of a light olive green colour externally, but retain most perfectly their natural appearance at a little depth from the surface. The change of colour in the case of red structures such as muscle, may be prevented by the addition of a little nitrate of potash. In the same way, if it is desired, the softening may be prevented by the use of alum. Unless in combination with both the two last-named ingredients, it is scarcely adapted for a permanent solution. The great advantage over all others is, in respect to specimens intended to be kept for limited periods, either for private dissection or for exhibition. Those intended for the microscope are far less spoiled by it than by any other which I am acquainted with. The only odour which it gives to specimens is a very peculiar one, resembling that of new kid gloves. The cheapness and efficiency of this salt will, I think, make it quite a boon to pathologists.—*Med. Times and Gazette, Feb.* 9, 1856, *p.* 137.

150.—*Charcoal Biscuits.*—Mr. James Bird has prepared biscuits containing charcoal for internal exhibition; each biscuit contains ten grains of this substance very carefully prepared. They afford an easy and palatable mode of employing this remedy in the form of an article of diet, and are likely to prove of service in gastric affections. We have known some persons who employed *over-burned toast* with advantage in relieving uneasy sensations of flatus in the stomach; it has at least the advantage of being easily obtained, and of affording the charcoal in a very fresh state, at the time it is most required by the patient.—*Dublin Hospital Gazette, Feb.* 15, 1856, *p.* 30.

151.—ON THE TREATMENT OF CHOLERA.

By Dr. David Jamison, Newtownards.

[Out of 106 cases which Dr. Jamison had under his care, there were only 28 *deaths:* 24 of these occurred in those who were in a state of complete collapse *before* they came under treatment.]

I may premise that the majority of the cases were treated in the cholera hospital, a wooden building, erected in 1849; it is commodious and comfortable; the remainder were treated in a large ward of the fever hospital. I had an unlimited

supply of blankets and bed-clothes, and everything I wanted was supplied at once by the directions of the Board of Guardians.

External Treatment.—On admission, the patients were put to bed and surrounded with warm blankets. If in collapse, either the hot wet sheets, as recommended by Mr. Barwell, were used, or sinapisms, hot oil of turpentine over the whole body, applied by hand-rubbing on the flannel, bottles and tin vessels of hot water, hot bricks, &c. were used. The hot wet sheets, and the hot turpentine, were found the best means of warming and reviving patients. Hand-rubbing towards the heart, with or without turpentine, was used on the legs and arms of almost all cases. In many cases I put a large fly-blister over the abdomen; when it acted it always did good. Cases admitted with vomiting, purging, and cramps, but not collapsed, had warm heavy bed-clothes put on, and the abdomen covered with a mustard poultice, &c. Often in the early stage, and always in convalescence, I applied mustard over the kidneys, and frequently it seemed to promote the creation of urine. Leeches were occasionally used in the congestive affection of the brain, but blisters to the nape of the neck were found more useful. Friction, ligatures, and warmth were used for cramps. The quantity of bed-clothes was diminished when patients rallied and got warm: perspiration was never solicited, indeed free perspiration occurred in only two cases; in one it accelerated death, in the other, a strong man, it cured the disease. The hot wet sheets never produced any amount of perspiration.

Internal Remedies.—Gallic acid, in five grain doses, was the staple remedy; it was used in almost every case, always with one grain or half a grain of calomel, and occasionally with camphor, ginger, and opium, given in sugar and water, after each discharge from the bowels, if these were marked, or with frequency proportioned to the occasion. I had used acetate of lead, acetate of quinine, and acetate of morphine, dissolved in vinegar and water, in some cases, at the first, but ceased to use it: perhaps before testing its value sufficiently I distrusted it. For vomiting and burning pain in the stomach, the remedy most used was five grains each of subnitrate of bismuth and carbonate of soda, with a little sugar. Aromatic spirit of ammonia and laudanum, also sulphuric æther and laudanum, were used in severe vomiting. Calomel in large doses was tried in some cases of collapse; I ceased to have faith in it. I never gave opium freely, and only occasionally, in small doses with the gallic acid or bismuth. In a few cases starch enemata with laudanum were used. Whiskey punch was given in many of the first cases: I came to think it seldom did good, and sometimes did harm—in fact, that nurses and patients were better without it; where I thought stimulants might do good, I substituted with advantage aromatic spirit of ammonia, or sulphuric æther, or essence of peppermint, or strong tea. My patients were permitted to drink only a small quantity at once. Tea, new milk, broth, &c., were given to all.

In the consecutive fever the organs inflamed or embarrassed were blistered, the bowels were opened with rhubarb and calomel; spirits of nitric æther, antimonial powder, acetate of potash, and cream of tartar were given; the body was sponged over with warm water, frequently patients were well washed with soap and water, and mustard or turpentine, as I stated before, was applied over the kidneys. A feverish state, more or less protracted, occurred in *every* case that recovered. In no case did salivation occur. My patients were, on the average, fifteen days under treatment.

It is foreign to my present object to say anything of local conditions or circumstances, which may have promoted the outbreak of cholera here, or caused its spread and delay.

Perhaps it is worth while to state, that I treated a great many cases of diarrhœa before and during the prevalence of cholera; and found, in mild cases, one part of laudanum and two parts of tincture of ginger, in doses of sixty drops, in sugar and water, three to six times daily, with a mustard poultice to the abdomen, and a warm foot-bath, frequently to effect a cure. In severe cases, Donovan's lead mixture, or opium pills of two grains, given freely, with whiskey punch occasionally, formed good remedies, when patients were kept warm in bed for a day or two, and had mustard, turpentine, or flies applied to the abdomen. I think sulphuric acid *may be a good* preventive remedy: but I firmly believe we have *other far better means of* treating diarrhœa, dysentery, and cholera. I tried it in *diarrhœa and dysentery*, with unsatisfactory results. I deem it a fact of some

interest, that not a miner at the Newtonards lead mines, where about 500 hands were employed, had cholera, though many of the men lived in cholera districts of the town, and some of them had cholera in their families; at least, I do not know of one case having occurred among them, and certainly not a death occurred. These men wear strong coarse flannel next the skin night and day. Could this have protected them? Diarrhœa prevailed among them during the cholera epidemic: it was seldom so severe as to prevent them working.

I have been as brief as possible, as I know your journal could readily be occupied with more valuable matter, and that I can say nothing new of cholera. If there be anything uncommon in the treatment I pursued, I suppose it is the free use of gallic acid. How much of the success was owing to it, I will not affirm; but my belief is that it restrained the purging often when no other known astringent would. Should I have cholera to treat again, I would be less afraid to use laudanum or opium; I would use whiskey and stimulants less; I would give *no* calomel in collapse or purging; I would use the same external means as before; gallic acid I would use, and the lead and quinine mixture I would, perhaps, give a fair trial to; fluid aliment, as Liebig's juice of beef and concentrated soups, &c., I would also give.—*Dublin Hospital Gazette, Nov.* 1, 1856, *p.* 292.

152.—*Water and the Cholera.*—A committee has been engaged in the investigation of the causes of the outbreak of cholera, which was so remarkable in the Soho district last year. As the result of patient investigation, they are "unanimously of opinion that the sudden, severe, and concentrated outbreak, beginning on August 31st, and lasting for a few early days of September, was in some manner attributable to the use of the impure water of the well in Broad-street." This opinion is supported by a variety of facts. We quote only one. A lady residing at Hampstead (West-end), being very partial to this particular water, was in the habit of drinking it daily, having it fetched in a bottle by a cart that went every day from Broad-street to Hampstead. She was seized with cholera on Friday (Sept. 1st) and died the next day. A lady staying with her at the time also drank of it and died. A servant drank the water and had a slight attack of diarrhœa.—*Lancet, Nov.* 17, 1855, *p.* 481.

153.—*Preparation of Blue Pill.*—Mr. Stoddart gives the following directions for the easy and rapid preparation of blue pill. By this process he states, that a pound of the pill mass may be obtained in an hour, so perfectly prepared, that no metallic globules are visible, even with a Coddington lens:—"Triturate the mercury with the *powdered liquorice* (adding a small quantity of distilled or rose water), till the globules are quite imperceptible, the confection of roses is *next* added, and all well mixed. The rapidity with which the liquorice 'kills' the mercury is really astonishing to one accustomed to the old way of rubbing the metal with the conserve.—*Pharm. Journal.—Dub. Hosp. Gaz. Feb.* 1, 1856, *p.* 15.

154.—*Blistering Plaster prepared with Chloroform.*—Dr. Landerer, of Athens, recommends as an improved mode of making blistering plaster, the preliminary digestion of the powdered cantharides for several days at a gentle heat, in a sufficiency of chloroform to moisten it. The mass is then to be added to the plaster half cold, taking care to avoid inhaling the chloroform, which becomes volatilized.—*Gaz. des Hôp., No.* 69.—*Med. Times and Gaz. Oct.* 13, 1855, *p.* 374.

155.—ON THE WATERS OF VICHY AND CARLSBAD.

By Dr. Cahill.

[*This* paper was read before the Western Medical and Surgical Society of London, *and contains* the results of Dr. Cahill's personal experience.]

He proceeded to give a sketch of the composition of the waters of Vichy and Carlsbad, ascribing the first and great good experienced in rheumatic affections, to the strong alkaline character of the former, which contains as much as fifty grains of bicarbonate of soda, besides chalk and magnesia, in the English pint (16 oz.) While those of Carlsbad, on the contrary, contained only eleven grains of the bicarbonate, and as much as twenty grains of the sulphate of soda, and eight grains of chloride of sodium. From this it was evident that the Vichy waters could saturate the acidity of the system much more rapidly than those of Carlsbad; indeed the urine has been rendered alkaline in 24 hours. The waters of Carlsbad being more aperient, as well as less antacid, require a longer time to act on the system.

Accordingly, we find that, while twenty-one days to a month is the usual course at Vichy, five weeks is considered the shortest time in which to receive benefit at Carlsbad. He here remarked, that although aperient, the effect of these waters was totally different from that of the waters of Homburg, Weisbaden, Kissengen, and those springs in which chloride of sodium is the prevailing salt, these being as severely purgative as the former are mild and gentle. The complaints for which invalids resort to both Vichy and Carlsbad, are similar—viz., gout, rheumatism, gravel, and affections of the liver and spleen; the last-mentioned diseases being but too common in France and Germany, as sequelæ of intermittent fevers; as also amongst military officers who have served in India, Algeria, &c. The author then proceeded to advert to the most common causes of failure or disagreement of these waters, and believed it to be the presence of some febrile action in the system, or to some disease overlooked or unknown to the medical attendant, and related two cases in illustration. Cases of organic disease of course remain uncured, although a great difference existed between the practitioners of Vichy and Carlsbad; for while those of the former place were immediately alarmed at the appearance of the slightest difficulty, declaring that "the waters did not suit," &c., the medical men of Carlsbad, on the contrary, had unlimited confidence in the powers of their springs. The regulations as to diet also differed widely at the two places. At Vichy, but little restraint appears to be enjoined, and the tables of the hotels were consequently well and variously supplied; and the visitors appeared far from insensible to their privileges. At Carlsbad, however, things were quite different, and considerable restraints were imposed; and the meat, butter, and eggs banished from the breakfast table were scarcely compensated by the dried and overdone meats at dinner, were it not for the soups and puddings, to which he gives all praise. The waters at Vichy are taken twice in the day—those at Carlsbad before breakfast only. He then gave some account of the different springs, but considered that the general effects were nearly the same, except that the hot springs had sometimes an effect upon the mouth and gums similar to a course of mercury.

To sum up the relative merits of the two places, the author believes that each has its superiority in different circumstances and cases. In those who require or bear active aperients, and still more where constipation is habitual, Carlsbad certainly is to be preferred. But for those who do not bear aperients, and in whom excessive acidity is the chief complaint, and above all in cases of diabetes, Vichy is as certainly preferable.—*Lancet, Nov.* 17, 1855, *p.* 473.

156.—*Cod-Liver Oil and Quinine.* By JOHN HORSLEY, Esq.—I had thought that most chemists were aware that pure quinia (like other resins) was soluble in oils and spirits. Cod-liver oil *with quinine*, which at the present time seems to attract so much attention, and have so many claimants for its discovery, is *easily* prepared by the following process:—

First prepare the quinia by dissolving two drachms of the disulphate in half a pint of water, acidulated with two drachms of dilute sulphuric acid; then precipitate by the addition of one drachm and a half of liquor ammonia; project on a filter, and wash the precipitate with four or five ounces more water. When the precipitate has been well drained, scrape off, and introduce it into an evaporating pan, and set it over a steam-bath; the heat will cause the quinia to *melt*, and separate from the residual water; this should be poured off, and the quinia col-

lected on a filtering-paper to dry, when it may be finely powdered and preserved for use.

To prepare the oil: Take sixteen grains of the quinia, and dissolve in eight ounces of cod-liver oil by means of a *gentle* heat; the oil will become slightly coloured. This, however, is best obviated by dissolving the quinia in a mixture of one drachm each of ether and alcohol, and mixing the solution with the oil, and then evaporating the spirit by means of a steam-bath.

If the oil requires filtration, it should be passed through a piece of lint, loosely placed on the neck of the funnel. Every ounce of the oil will contain two grains of quinia.—*Lancet, Nov.* 15, 1855, *p.* 474.

157.—*Cod-liver Oil Chocolate.—Jeffrey's Pure Cod-liver Oil with Quinine.*—Under the above heading, we draw attention to a preparation which has been recently registered in the Patent-office, as a substance likely to do away with many of the objections raised against the use of cod-liver oil.

As an article of concentrated diet, independent of any remedial effect it may possess, cod-liver oil has been favourably received and adopted by the profession. It possesses, however, an inconvenience to many persons in the unpleasantness of its odour and taste—so great, indeed, as frequently to prevent its being taken. The present substance bids fair to remove entirely these objections to the use of the oil. The chocolate is odorized with cinnamon, bitter almonds, peppermint, &c., so as to give it an agreeable flavour, and perfectly to cover the fishy taste of the oil.

Our French neighbours employ chocolate very freely as an article of food. In England we are not much accustomed to its use, but it is a highly nourishing matter, containing a larger proportion of nitrogen than any other vegetable substance. The prepared oil chocolate, it is stated, agrees well with even the most delicate stomachs, and is highly beneficial in all diseases attended with debilitating effects. When the ordinary amount of food is insufficient to support the strength, it is a valuable auxiliary, quickly restoring the waste both of fat and animal fibre. We believe that when this preparation becomes well known it will be generally adopted by the profession.

Mr. Jeffrey's preparation is a very elegant one. It contains two grains of quinine to the ounce.—*Lancet, Nov.* 3, 1855, *p.* 418.

158.—*Test for the Purity of Cod-liver Oil.*—M. Berthe, as the result of numerous researches, states that when we let a drop of concentrated sulphuric acid fall on some drops of pure cod-liver oil contained in a glass plate, placed on a sheet of white paper, an areola of the most beautiful violet is formed, which soon passes into a crimson. After a few minutes, the mixture becomes brown.—'Bulletin de l'Acad., T. XX. 877.—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

159.—*Local Use of Iodine.*—Dr. Miksohik states, that he has derived great advantage from the tincture of iodine, as an emmenagogue, applying it externally to the os uteri. Cases which had long resisted all other means, have yielded to the application after the third day. He has not found the advantages that Boinet says attend its use in vaginal catarrh, and from the temporary irritation it produces, it should be avoided in pregnancy, and when the uterus is inflamed. As a means of dispersing organic exudations he much prefers lotions (iod. potass. 3j., iodin. gr. x., aquæ ℔j.) to ointments. They should be applied on compresses which are to be covered by a cataplasm.—'Wien Wochenschrift.'—*Med. Times and Gazette, Oct.* 13, 1855, *p.* 374.

160.—COLD AS AN ANÆSTHETIC.

By Dr. W. V. Pettigrew.

[The means of producing local anæsthesia by cold, as proposed by Dr. Arnott, has lately excited a good deal of attention. The following cases will illustrate its value:—]

Case 1.—J. T., Wilton-street, aged 52. Fatty tumour of five years' gradual growth, in the popliteal region, about the size of an orange. Had been presumed to be an aneurism, an enlarged gland, and an enlarged ganglion, the characteristics of each of which, however, were wanting. I obtained some rough ice, had it very finely powdered, and added what I presume to be sea-salt, viz., that which I use (procured at Bolton's, 146, Holborn-bars) to make sea-water with for my marine vivarium, in the proportion of 2 pints ice to 1 of salt. This was placed in a thin muslin bag, and applied closely over the popliteal region. In one minute and three-quarters the part was hard, very white, and had the appearance of a washerwoman's hand. The tumour was removed in half-a-minute, and two ligatures brought the edges of the wound together. Strapping and a bandage were applied; about ten drops of blood lost; no sponging required, or vessel to be tied, although the lobules of the tumour dipped deep. Not the slightest sensation of pain was experienced, and as the patient was deaf, and lay upon his stomach, and could not see what was going on, it was a fair case. I was assisted, and timed, watch in hand, by F. Pettigrew.

Case 2.—M. A. C., Belgrave-square, aged 26; highly nervous temperament. Solidified ganglion over the patella of the right knee; strongly adherent to the skin and of three years' growth. Informs me that it has been blistered for the last twelve months; no pain, but very inconvenient. Ice and sea-salt in same proportions as in the last case. Frosted in two minutes and a-half. Operation lasted nearly two minutes, as the adhesions were so strong it was like carving out a solid ball from the skin. No pain was felt during the long incision through the skin, nor in detaching the tumour from the sides; but the separation from the patella was felt, although not so acutely as under other circumstances. Two ligatures were run through the integuments; strapping and bandage; not above twenty drops of blood lost. Dr. Hullet Browne and Mr. F. Pettigrew assisted me, the former of whom timed the freezing at operation.

As far as I can judge from these two cases, I should say that at least two-thirds of the operations performed under chloroform may be dispensed with, the cold application is so simple and so rapid in its action. As to the pain of the application,—at first it appears hot, then tingling, and sensation is altogether lost after this. The ice must be most finely pounded. I did it in a towel, banging the ice with a weight; if it is not well pounded, the part will evidently not be equally frozen, which accounted for Case 2 taking two minutes and a-half to freeze; neither should too much ice be put in the bag, as a thin layer can be more easily placed under a projecting tumour. I may mention that to-day, the 28th, the bandages are just stained at the lower portion of each wound. To-morrow, or next day, I purpose operating upon a nævus, and have several other cases waiting, including a breast, for next week, and will let you (if you think it sufficiently interesting) know the results. I had the performance of the operation timed, to ascertain whether the reaction speedily returned.—*Med. Times and Gazette, Dec.* 22, 1855, *p.* 629.

161.—*Glycerine as a Dressing for Wounds.*—During the last six months repeated laudatory notices of the use of glycerine as a dressing to wounds and ulcers have appeared in the French journals. M. Dallas, of Odessa, states, that he has employed it for several years, and in the Hôpital St. Louis, MM. Demarquay and Denonvilliers have put it to an extensive trial. They report of it, that it possesses very extraordinary virtues, causing phagedænic action to be arrested, promoting the process of healthy granulation, and inducing rapid cicatrization. It is even stated to have effected the cleaning of wounds to which citric acid, nitric acid, and the actual cautery had been applied in vain. We have lately had an

opportunity of watching a trial of the remedy by Mr. Skey, in St. Bartholomew's Hospital. The first few cases in which it was resorted to appeared greatly benefited, and Mr. Skey was induced by their result to direct its general use. His final conclusion, however, as stated in clinical remarks, has been, that the remedy possesses no peculiar virtues whatever. A considerable number of sores heal rapidly during its use, as, indeed, they would do under that of any non-irritating application which would exclude the air and prevent drying; in those, however, which have assumed an unhealthy state, and which resist the influence of other like remedies, it effects nothing whatever. A smaller series of trials by Mr. Hutchinson on patients at the Metropolitan Free Hospital, have led him to the same conclusion with Mr. Skey. Unhealthy sores, dressed with it for periods of three weeks, have remained precisely *in statu quo*. It is an agreeable application, causes no smarting, excludes the air, keeps the sore moist, and does not adhere to its edges, but beyond these it appears to possess no recommendations. While more expensive, it seems little, if at all, superior to olive or almond oil. It may seem difficult to reconcile the great discrepancy between foreign and English experience which these conclusions show. It might, perhaps, scarcely be deemed fair to insinuate, that on the Continent the employment of dressings which simply exclude air, and are themselves non-irritating, is not so well understood as among ourselves, and that, consequently, credit has been given to a single remedy which belongs rather to the whole class. Such, however, we suspect is, to some extent, the case. In one case, recorded by M. Petel, the source of fallacy is transparent. A woman came under his care for phagedænic stomatitis. Glycerine was applied, and *chlorate of potash given*. A very rapid cure, of course, occurred. The narration reminds one of Voltaire's assertion, that he could easily kill a flock of sheep by spells of witchcraft, provided, at the same time, he might mix a little arsenic with their food.—*Med. Times and Gaz., April* 12, 1856, *p.* 362.

162.—*Capron's Ventouse, for Cupping and Dry Cupping.*—This very useful and ingenious instrument is the invention of M. Capron of Paris, and is another instance of the valuable adaptation of india-rubber to our surgical appliances. The india-rubber ball is an exhausting medium, which may be regulated to any required power by the hand of the operator. By turning the screw, the ball can be taken away, leaving the glass in active operation upon the part. The Ventouze is constructed for cupping, leech-bites, and as a breast-reliever; different glasses being added to fulfil these various purposes, which are accomplished most perfectly. Messrs. Weiss & Co. are appointed the London agents.—*Lancet, April* 19, 1856, *p.* 436.

163.—ON ULCERATION OF CARTILAGE.

By James Syme, Esq., Professor of Surgery in the University of Edinburgh.

[In a clinical lecture on this subject, Professor Syme made the following remarks:—]

To this title objections have been made, and I am not prepared to maintain that it is free from exposure to them. But in using it I merely wish you to understand a particular state of articular disease, occurring in certain circumstances, characterized by peculiar symptoms, and remediable by only one means of treatment. It is generally met with in persons liable to rheumatism, which, after shifting about through various parts of the body, is said to fix itself in the joint affected. On other occasions it appears suddenly, without any such previous warning, and is most apt to do so as a sequel of some feverish disturbance, especially that which so frequently occurs in women who are nursing. It is hardly ever met with in the ball-and-socket joints, such as those of the shoulder and hip, being nearly confined to the hinge-joint articulations, as those of the elbow, wrist, knee, and ankle, which are affected in degrees of frequency that may be arranged in the same order as just mentioned.

The symptoms are, first, severe, deep-seated pain, aggravated by pressure and

motion, generally increased during the night, and usually suffering the exacerbation before rainy weather; second, uneasy sensations, in general referred to the joint next to the one concerned, but frequently extending throughout the limb; third, diminution or complete loss of muscular power; fourth, œdematous swelling; fifth, variations of temperature; sixth, numbness or want of proper sensation; seventh, more or less swelling of a firm unyielding kind, confined to the seat of the articulation. The condition may continue for weeks or months with little or no alteration, but sooner or later terminates either in recovery, with more or less stiffness of the joint, or in suppuration, when caries is the most frequent result. When the joint is examined at an early period, the cartilages are found eroded, with a little bloody fluid in the cavity, and hence the disease has received its appellation. In order to relieve the patient's distress, to protect the joint from undergoing a change inconsistent with its free mobility, and to prevent the risk of suppuration, which must be attended with either anchylosis or caries, it is obviously a very important object in surgical practice to obtain an effectual control over this morbid derangement. But the means adequate upon other occasions are here altogether unavailing. The constitutional remedies by which alone synovial disease can be successfully combated are of no avail, and the prevention of motion, which has so beneficially superseded the employment of counter-irritation in other diseases of the joints, here affords at best nothing better than a very imperfect palliation. Fomentations, poultices, leeches, blisters, and even issues opened by the knife or caustic, cannot claim any higher degree of efficiency, so that a practitioner who possesses no other means of relief must regard such cases as the opprobria of his art, and distressing subjects of professional care. But fortunately there is a remedy within the reach of every one not precluded by prejudice from employing it, which may be regarded with perfect confidence as an effectual counter-agent of the disease in question. This is the actual cautery.

Nearly thirty years ago, the perusal of the work on "Arthrokakologie," by the late Professor Rust, of Berlin, induced me to employ the actual cautery for counter-irritation. At that time, so far as I know, it had never been used for this purpose in Great Britain, and much horror was expressed by many of my professional brethren, at what seemed to them so shocking a proposal. But the surprising and no less satisfactory results derived from its use soon forced the red-hot iron, notwithstanding all its terrors, upon the attention of practitioners, and as frequently happens under such circumstances, led to mischief through its indiscriminate employment. Many a time I have seen joints suffering from nothing but gelatinous degeneration, burnt longways and crossways so as to present the pattern of a chequered plaid, and even in cases of subacute phlegmonous inflammation, I have seen this excellent remedy employed so ignorantly and remorselessly as to open the joint, and establish a pretext for amputation. But a proper field for beneficially employing the actual cantery is that disease of the joints which I have just endeavoured particularly to describe, and for this it may be considered a remedy no less certain than speedy. If time permitted, I could give you a long list of remarkable cases, in which patients, exhausted by protracted suffering, disappointed by the employment of useless treatment, and regarded as hopeless by their medical attendants, were suddenly transferred by it from misery to comfort, and restored to permanent good health. One of the first I recollect came with great difficulty to Edinburgh, suffering from protracted disease of the elbow-joint, in the course of which he had employed all the ordinary means, including a "gross of leeches," without obtaining relief, so that for several weeks, as he assured me, he had not been conscious of ever sleeping. Indeed, he could not assume the horizontal posture, and passed all his time seated in a chair. I applied the cautery. Next night he slept soundly; the swelling and pain soon subsided, and recovery was quickly completed, with merely some stiffness and want of smoothness in the motions of the joint. The patient was a fish-curer at Berwick-upon-Tweed, and for long afterwards annually sent me a salmon in grateful testimony of the relief which he had experienced.

The patient now before you, Mrs. ——, aged 27, tells us that five weeks ago, when her baby was seven months old, she was exposed to cold by hanging out clothes to dry, and subsequently had a feverish attack, which was followed by the painful swelling of the wrist-joint, which has existed ever since. You observe the

enlargement of the joint, the œdema of the hand, the utter powerlessness of the fingers; you hear what the patient says of her sufferings, and you may judge of their severity from her care-worn aspect. Fomentations and leeches have afforded no relief. We shall now try the effect of the cautery.

[Chloroform having been administered, the cautery was applied on the back of the wrist, in the front of a cross; and, eight days afterwards, Mr. Syme thus continued his remarks upon the case:—]

The patient says that she has improved every hour since the cautery was applied. She slept well the first night, and is now entirely free from pain at the wrist, as well as her uneasy sensations elsewhere. The œdematous swelling is almost gone, and the fingers are stronger, so that she can now grasp with sensible force. In short, she is convalescent.—*Lancet*, *April* 19, 1856, *p.* 437.

164.—EXPERIMENTAL RESEARCHES ON THE NERVOUS SYSTEM.

By Dr. E. Brown-Sequard, Laureate of the Académie des Sciences.

There are two kinds of sensitive fibres in the posterior columns of the spinal cord, some going up towards the encephalon (centripetal or ascending fibres), some going in the opposite direction (centrifugal or descending fibres).—I had found long ago, that after a transverse section of the posterior columns of the spinal cord, the inferior surface of the section, or that of the part of the posterior columns which seems to be separated from the encephalon, remains sensitive. In 1852 I was forcibly led to admit, that there are sensitive fibres going in a centrifugal direction in the posterior columns. The following experiment was the first which led me to this conclusion. I introduce a very sharp bistoury between the posterior and the anterior parts of the spinal cord, so as to separate the two posterior columns from the grey matter, and from the antero-lateral columns. By this means I obtain a segment of the posterior columns, in continuity, by its two extremities, with the rest of its spinal marrow. This being done, I divide transversely the upper extremity of this segment, leaving it attached merely by its lower extremity to the rest of the cord. This segment I find sensitive in the whole of its length, when it is not much more than two inches long, in a large animal.

If we prepare, in the same way as in the preceding experiment, a segment of the posterior columns, two inches long, and attached by its upper extremity, instead of being attached by the lower, we find, also, that this segment is sensitive in all its length.

To avoid circumlocution, I will call "cephalic segment" the one united to the cord by its upper or cephalic extremity, and "caudal segment" the one united to the cord by its lower or caudal extremity.

A caudal segment usually seems to be more sensitive than a cephalic segment. The sensibility in the two segments increases from the free or divided extremity to the attached extremity. When the segments are four or five inches long, sensibility disappears from the divided extremities.

The pain produced when we irritate the caudal segments arises from two causes, the principal of which is, that there are some descending or centrifugal sensitive fibres in it. The other cause is, that reflex painful cramps take place in consequence of the irritation of this segment.

The existence of the descending sensitive fibres will be rendered more certain by other experiments which will be related hereafter.

There are also ascending and descending sensitive fibres in the posterior grey horns, and very likely, in the posterior parts of the lateral columns.—In making a caudal or a cephalic segment of the posterior columns, if we leave united with this segment longitudinally a part of the lateral columns with the two posterior grey horns, we find that sensibility is greater in the posterior columns of the segment than when it is composed only of the two posterior columns. When we leave a great part of the lateral columns with the segment, its sensibility seems to be a little greater.

Now we have to examine where thedescending and ascending sensitive fibres

of the posterior columns are coming from, and by what channels they communicate with the encephalon.

The ascending and descending sensitive fibres which exist in the posterior columns, come mostly, if not entirely, from the posterior roots of the spinal nerves.—I draw this conclusion from the following experiments, which show, that a certain number of the fibres of the posterior roots pass through the posterior columns.

After a transverse section of the posterior columns at a little distance in front of the posterior roots of a pair of nerves, I ascertain that these roots are still sensitive, although a little less than before the operation. Then I divide transversely the posterior column at a short distance behind these roots. Their sensibility after this second section is very much diminished, so that we are led to admit, that many of the fibres of the posterior roots pass into the posterior columns in which they are descending.

Now, in making first the section behind the posterior roots of a pair of nerves, we find their sensibility diminished, and after the section before these roots we find it very much more diminished. So that we are led to admit, that many of the fibres of the posterior roots pass into the posterior columns in which they ascend towards the encephalon.

The posterior roots not only send ascending and descending fibres to the posterior columns, but also to the posterior grey horns, and very likely to the posterior parts of the lateral columns.—After having divided transversely the two posterior columns in front and behind the posterior roots of a pair of nerves, if we enlarge these two sections by dividing transversely the posterior grey horns, and the posterior parts of the lateral columns, we find that these roots lose entirely their sensibility.

If we introduce a flat needle into the posterior grey horns, in front and behind the posterior roots of a pair of nerves, so as to divide transversely these horns, we find that sensibility is diminished in these roots. If these punctures into the grey matter are made only in front or behind these roots, their sensibility is very little diminished after the operation.

If we divide the posterior part of the lateral columns, together with the posterior grey horns, we find that the loss of sensibility is a little greater.

The ascending and descending sensitive fibres which have passed from the posterior roots into the posterior columns, the posterior grey horns, and very likely also the lateral columns, soon leave these parts to go into the central grey matter.—This is proved by a great many experiments, of which I will relate only the following:—After having made a transverse section of the posterior half of the spinal cord, if we make a second similar section, at a distance of four or five inches, or more, if the animal is a very large one, we find that the upper surface of the lower section is very sensitive, and the posterior roots attached near it are also very sensitive. Now, if we make other transverse sections of the same posterior half of the spinal cord behind the upper one, we find that the nearer the section is made to the lower one, the more sensibility is diminished in the parts which we had found very sensitive at first. This is a proof that the ascending sensitive fibres, when going upwards, leave the posterior parts of the cord after the other. An experiment of the same kind proves that the descending fibres behave as the ascending do.

After having gone out from the posterior columns and the posterior grey horns, the sensitive fibres pass into the central part of the grey matter, as is proved by the effect of the transverse section of this central part of the cord.

The ascending and the descending sensitive fibres coming from the posterior roots, decussate in the spinal cord.—It was admitted, before my researches, that there is no crossing of the sensitive fibres into the spinal cord. Physiologists and Pathologists entirely agree upon this subject, and, in the books upon the diseases of the spinal cord, it is stated as a well-proved fact, that a lesion of one side of this organ produces paralysis both of voluntary movement and sensibility in the same side of the body. The following experiments prove that the sensitive fibres cross each other in the spinal cord, and we will relate, in a moment, a few (out of many) pathological facts which agree with these experiments.

After having divided transversely a lateral half of the spinal cord in the dorsal region, we find that there is an increase in the sensibility of the parts of the body

situated behind the section, while the corresponding parts in the opposite side of the body are much less sensitive than before the operation. This experiment and the following prove that the transmission of the sensitive impressions coming from the left side of the body, takes place mostly along the right side of the spinal cord, and *vice versâ*.

If a transverse section of a lateral half of the spinal cord is made in the cervical region, the two limbs on the side of the section become hyperæsthetic, and the limbs on the opposite side lose, at least, a great part of their sensibility.

If, after a transverse section of a lateral half of the spinal cord of the dorsal region, we divide the other half of this organ in the cervical region, we find that the hyperæsthesia, which existed after the first section in the parts of the body which are behind it, disappears, and is replaced by anæsthesia.

If we divide transversely, first, the two posterior columns of the spinal cord in the dorsal region, we find, as I have already said in the first part of this paper, that the posterior limbs are in a state of hyperæsthesia. This being ascertained, I divide transversely the remainder of a lateral half of the spinal cord, at the place where the posterior columns have been divided, and then I find that the hyperæsthesia of the posterior limb, behind and on the side of this second operation, becomes increased, while not only the hyperæsthesia, but sensibility, disappears almost entirely in the other posterior limb.

A longitudinal section, separating the spinal cord into its two lateral halves, gives very decisive results as regards the crossing of the sensitive fibres in this organ, particularly when this section is made upon the cervico-brachial enlargement. In such a case, sensibility is lost in the two anterior limbs, while it remains, and seems somewhat increased, in the two posterior limbs. This having been ascertained, if I divide transversely one of the lateral halves of the spinal cord, at the place where they are separated one from the other, I find that there is an increase in the hyperæsthesia of the posterior limb on the same side, and that the sensibility of the other posterior limb is almost entirely destroyed.

It would be too long to relate some experiments which prove that the appearance of sensibility in the side of the body opposite to the section, depends upon a communication between this side and the other, which is hyperæsthetic, by means of reflex action and of what has been called recurrent sensibility by Magendie.

The ascending, as well as the descending sensitive fibres make their decussation, in a great measure, very near their place of entrance into the spinal cord from the posterior roots.—After having divided transversely a lateral half of the spinal cord, in the dorsal region, if we divide longitudinally this organ, so as to separate its two lateral halves one from the other, and at a right angle with the transversal section, we obtain the following results, when the longitudinal section, in a large animal, is only two inches long:—Whether this longitudinal section has been made behind the transverse one (so as to give a caudal segment of a lateral half of the cord), or before the transversal (so as to give a cephalic segment), we find that sensibility persists, but diminished, in these segments, and in the posterior roots which are inserted upon them. If the longitudinal section is more than two inches, sensibility does not exist in the whole length of the segment; it begins to exist at the distance of about two inches from the extremity, which adheres to the rest of the cord, and it increases by degrees from this part to the adherent part.

There are pathological cases observed in man, which prove also that the sensitive fibres make their decussation in the spinal cord.—I have already published some cases of this kind, and they will be found, with a few others, in the book I am about publishing. I will merely relate here, shortly, the three following:—

1. A patient was paralyzed of voluntary movement on the right side of the body, with unimpaired sensibility. On the left side, on the contrary, he had lost sensibility, but had no paralysis of voluntary movement. After death, a fungoid growth was found pressing upon the right lateral half of his spinal cord.

2. A patient, with loss of voluntary movement, and conservation of sensibility in the arm and leg, on the left side, had only a very obscure sensibility in the same parts on the right side. After death, a clot of blood was found in the left lateral half of his spinal cord in the cervical region.

3. A patient had lost voluntary movement, and had his sensibility normal on the *right* side of the body. On the contrary, on the left side, he had entirely lost

sensibility, but had no paralysis of voluntary movement. After death, a clot of blood was found in the left lateral half of the spinal cord, in the cervical region.

It results clearly from these facts, and from others which I cannot relate here, that the sensitive fibres cross in the spinal cord.

Many cases of alteration of a lateral half of the medulla oblongata, and of the pons Varolii, prove that the decussation of the sensitive fibres of the trunk and limbs takes place in the spinal cord.—I will merely relate, as briefly as possible, three of the cases as examples :—

1. A patient had paralysis of voluntary movement in the limbs, on the left side, and also a very dull sensibility in these limbs.

The symptoms increased, and the hemiplegia became complete in the left side, but the right side remained perfectly healthy. After death, the right lateral half of the pons Varolii was found to be the seat of a diffluent softening, while the left half was healthy.

2. A patient was hemiplegic both of voluntary movement and sensibility on the left side of the body. After death, a *ramollissement*, the size of an almond, and resembling liquid pus, was found in the inferior and middle part of the right side of the pons Varolii.

3. A young Pole became paralyzed both of sensibility and voluntary movement in the left side of the body. After death, the right side of the pons was found double its normal size, extending forwards and backwards, and compressing the neighbouring parts. The cause of the enlargement of the pons was a very large clot of blood.

These facts do not agree with the views of Longet, as to the place of crossing of the sensitive nerve-fibres in the cerebro-spinal centre. Longet thought that this crossing took place in front of the pons Varolii, where the processus cerebelli ad testes seem to decussate.

The cases of alterations, limited to one-half of the pons Varolii, of the medulla oblongata, and of the spinal cord, all agree in showing that the sensitive fibres of the trunk and limbs make their decussation in the spinal cord, and not higher. The very disputed question whether the medulla oblongata has a crossed action for sensibility or not, is decided in the affirmative by these facts.

Some anatomical appearances had led Sir Charles Bell to admit that the decussation of the sensitive fibres takes place in the floor of the fourth ventricle, near the nib of the calamus. It is not necessary to show that this view is in opposition with the results of the experiments and of the pathological cases which prove that it is in the spinal cord that the sensitive fibres decussate.

The transmission of sensitive impressions through the spinal cord takes place in some definite directions, and not, as many German physiologists have thought, in almost every direction.—The fact that a section of a lateral half of the spinal cord does not prevent the taking place of the transmission of the sensitive impressions coming from the parts of the body which are on the side and behind the section, had led Stilling and others to admit that the grey matter of one-half of the spinal cord was able to transmit impressions coming from the two sides of the body. Other experiments upon frogs,—animals in which reflex actions are very energetic,—have misled these physiologists, and they have concluded that the transmission of sensitive impressions may take place almost in every direction in the spinal cord, and that one part of the cord may act in place of another in a supplementary manner.

These views, which are in opposition with the theories of the isolation of sensations, are also in opposition with many of the experimental and clinical facts we have related. It is not necessary to show how these facts are in opposition with the views of the German physiologists. We will merely say, that the loss of sensibility observed in experiments and in pathological cases, on the side of the body opposite to the side of the lesion, should not have taken place had these physiologists been right. Another striking experiment against their view is, that a longitudinal section separating the spinal cord in the whole lumbar region, prevents the taking place of transmission of the sensitive impressions coming from the posterior limbs.

All the experiments I have made tend to prove, that the transmission of sensi-

tive impressions follows a definite course in the spinal cord, and that when they cannot follow their normal course, they do not find a supplementary one.

The course of sensitive expressions in the spinal cord is not the same as that of the nervous force for the reflex actions.

M. Flourens has shown long ago, that the spinal cord has the faculty of propagating the nervous force in almost every direction for the reflex actions. The following experiment shows the differences between the transmission of sensitive impressions and that of the nervous force acting for reflex actions. After having divided longitudinally in two lateral halves the lumbar enlargement of the spinal cord, we find that sensibility is lost in the posterior limbs, and that reflex actions remain in them before and after a transverse section has been made in the dorsal region of the spinal cord.

There are some transverse fibres in the spinal cord, coming from the posterior roots, which do not seem to transmit sensitive impressions.—After a transversal section of the posterior half of the spinal cord, just in front and behind the roots of a pair of nerves, we find that there is hardly any appearance of sensibility in the posterior roots inserted between the two sections. There is, when we irritate these roots on one side, or rather when we irritate the part of the skin to which they are distributed, a slight reflex movement on the corresponding and on the opposite side of the body. The transverse fibres, which the microscope shows going from the posterior roots of the one side to the anterior roots of the corresponding and of the opposite sides, seem not to be employed for the transmission of sensitive impressions, but for reflex actions. These transverse fibres have been seen by almost all the micrographers; but it is mostly to Stilling, and after him to Mr. J. Lockhart Clarke that we owe the first good descriptions of them.—*Med. Times and Gazette, May* 3, 1856, *p.* 432.

165.—REMARKS ON THE ANATOMY AND PHYSIOLOGY OF THE SPINAL CORD.

By J. Lockhart Clarke, Esq., F.R.S.

[In the preceding very remarkable and valuable experiments of Dr. Brown-Séquard, on "the Channels of Transmission of the Sensitive Impressions through the Spinal Cord and Medulla Oblongata," some allusion is made to the researches of Dr. Clarke, which may be better understood by the following explanation.]

Before the appearance of my investigations in the 'Philosophical Transactions of the Royal Society' for the years 1851 and 1853, the opinions were generally maintained, that the posterior—sensitive and impressional—roots of the spinal nerves were attached to both the posterior and lateral white columns of the cord; and that the posterior columns were the channels of communication between these nerves and the sensorium. Now, in the first part of these inquiries, among other facts, I proved, by means of a new method, and to the entire satisfaction of many of our most distinguished anatomists, that the posterior roots are attached immediately to the posterior columns alone, and that they communicate with the lateral columns only after traversing certain portions of the grey substance. In the second series of inquiries may be found a very full and minute description of both roots of the spinal nerves, and of their course in the white and part of the grey columns, illustrated by plates which were made from preparations that I have now by me, and are open to inspection. The posterior roots, as there described, are composed of three kinds of bundles.

The first kind enter the cord transversely, and pursue a very remarkable course, but are not satisfactorily seen below the cervical enlargement. Each bundle, after traversing the longitudinal fibres of the posterior columns in a compact form, and at a right angle, continues in the same direction to a considerable, but variable, depth within the grey substance, dilating and again contracting, so as to assume a fusiform shape; it then bends round upon itself at a right or more obtuse angle, and running for a considerable distance in a longitudinal direction *down* the cord, sends forwards, at short intervals, into the anterior grey substance, *a series of* fibres like those issuing from the roots of a plant. In this longitudina-

course, it is joined by corresponding fibres from bundles above and below it, which thus contribute to form a continuous band, as low, at least, as the cervical enlargement. The fibres, or as it were, rootlets, projecting from this band into the anterior grey substance, have the following distribution:—Part of them form loops with each other within the grey substance, particularly near its border: others extend directly into the anterior and lateral white columns, and bending round both upwards and downwards, are seen sometimes to re-enter the grey substance, and form with each other a series of loops, and sometimes to continue a longitudinal course within the anterior (and probably lateral) columns, among the fibres of which they become lost.

The second kind of bundles also traverse the posterior columns transversely, but with different degrees of obliquity from without inwards, extending nearly as far as the posterior median fissure. They enter and pass through the posterior grey substance at various angles and in a compact form, interlacing and intertwining each other in the most complicated manner; some of their fibres cross over to the opposite side, through the posterior commissure, behind the spinal canal. Others extend outwards, into the posterior and lateral white columns; while the rest may be traced deeply into the anterior grey substance, where they separate in various directions, and are ultimately lost to view.

The bundles which compose the third kind of posterior roots enter the cord obliquely, and pursue two opposite courses. A few of their fibres proceed near the surface, both upwards and downwards, and pass out again, with the roots above and below them. The rest cross the posterior white columns obliquely, and chiefly upwards, a smaller number only running downwards. Interlacing, at the same time, with each other and the roots already described, they diverge, and, for the most part, reach the gray substance, at points successively more distant from their entrance in the cord, in proportion to the greater obliquity of their course in the posterior white columns: the remaining, or most divergent, fibres taking a longitudinal course with the fibres of those columns, among which they become lost. It is impossible to say whether any of these latter fibres are continued upwards as far as the brain, or whether they ultimately reach the grey substance of the cord.

From these anatomical data I felt myself justified in drawing the following conclusions:—"It may, then, I think be fairly laid down as a well-established fact, that nearly all, if not the whole, of the fibres composing the roots of the spinal nerves, after passing through the anterior and posterior white columns of the cord, proceed at once to its grey substance; and that if any of them ascend directly to the brain, it must be those only of the posterior roots which run longitudinally in the posterior columns."

"The question, then, arises,—Do the fibres of the posterior roots, which run longitudinally in the posterior fasciculi, transmit impressions to the sensorium? In answer to this question it may be stated,—1st. That even if they reach the brain, their number appears insufficient to convey such impressions from all parts of the body; and, 2ndly, that the anatomical connexion of the posterior columns exclusively with the cerebellum, would, *à priori*, lead us to a negative conclusion, unless we regard this latter organ as the common centre of sensation, which we have no grounds for believing it to be. But the same anatomical connexion of the posterior columns with the cerebellum, clearly indicates that they establish some physiological relation between this organ and the spinal cord; and if the cerebellum were proved to be, according to the generally received opinion, a centre of motor power only, destined for the control and co-ordination of complex muscular movements, it would then follow, that these columns were motor, and not sensitive, whether or not we admit them to be constituted wholly, or in part, of the longitudinal fibres of the posterior roots.

"Upon anatomical grounds, then, it would appear, that the posterior columns are not the channels of communication between the sensorium and the posterior spinal nerves."—*Philosoph. Trans.* 1853, *p.* 350–1.

I am not aware that any opposition has been made to these conclusions which I drew from my anatomy, and which are now confirmed by the experiments of Dr. Brown-Séquard. Nevertheless, there was still wanting the physiological proof which he has so ably and ingeniously supplied.

The nerve-fibres which run downwards in all regions of the cord I have observed with remarkable distinctness in some of the Articulata, in which they are exactly equal in number to those which pass upwards.—*Med. Times and Gaz., May* 3, 1856, *p.* 435.

166.—*Description of a Contrivance by which any Length of Vulcanized India-Rubber Tube may be fixed to a Canula when the Operation of Paracentesis Abdominis is Performed.* By JOHN BIRKETT, Esq., Surgeon to Guy's Hospital.—[In cases where the patient cannot bear disturbing or removing from her common position in bed, the following addition will be found very convenient and useful.]

On the canula is fixed a flange, (fig. 1. 4.) The canula is prevented sliding up the trocar by a shoulder, (*b*.) Over this flange a piece of vulcanized india-rubber tube, two inches long, is drawn. This is represented by the dotted line, 5. Through the india-rubber tube and canula the trocar is passed, and the instrument is ready for use.

A piece of metal tube, one inch long, with a flange at either end, (fig. 2, *a*,) is required, and a long piece of india-rubber tube (fig. 2, *b*) is fixed to one end, (*d*.) When performing the operation, the other end is inserted into the free end of the india-rubber tube, (fig. 1, 5,) after the trocar is withdrawn.

The instrument is thus used: the trocar and canula are passed into the abdominal cavity in the usual manner. The finger and thumb of the left hand are then applied to the piece of india-rubber tube, and it is compressed firmly as the trocar is withdrawn. Whilst the sides of the tube are firmly pressed together, to prevent the escape of the fluid from the abdomen, the end of the metal tube (fig. 2, *c*) is inserted into the free end of the india-rubber tube, (fig. 1, 5.) The thumb and finger are now removed, and the serum flows away freely.

When the operation is dexterously performed, not a drop of fluid escapes over the bed-clothes. Also, by this means, the objectionable sound of the flowing stream is prevented by the end of the tube being placed in the fluid.

A similar contrivance may be adopted to prevent the admission of air into the chest when paracentesis thoracis is performed.

Fig. 1.

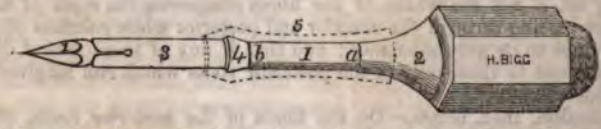


Fig. 1.—1. The trocar, having a long shaft (*a*), and a shoulder (*b*), by which the canula is prevented sliding over the shaft.
2. Ebony handle, without any projection at the joining with the shaft (*a*), so that the piece of vulcanized tubing may slide over it.
3. Silver canula, with a flange, 4, to which a piece of tubing two inches long is fixed, 5.
N.B. The dotted lines represent the vulcanized india-rubber tubing.

Fig. 2.

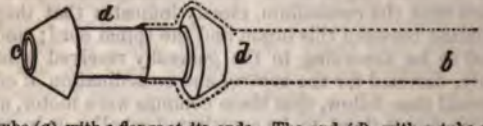


Fig. 2.—A metal tube (*a*), with a flange at its ends. The end (*d*), with a tube of vulcanized india-rubber, of any required length, attached. The end (*c*), which is inserted into the end of the piece of india-rubber tube, attached to the canula, after the trocar is withdrawn.—*Lancet, April* 19, 1856, *p.* 427.

167.—*Varicose Veins.*—In a very marked case of a patient with varicose veins, in St. Bartholomew's, Mr. Skey placed a dozen small issues with the potash paste *along* the *trajet* of the enlarged venous trunks, with the very best possible effect; the issues healed up very kindly, and the varicose condition of the large trunks of

the lower extremity disappeared *pari passu* with the action of the issues. Mr. Skey believes this to be the best of all the plans for treating this troublesome affection.

In two similar instances under treatment in University College Hospital, Mr. Erichsen placed ligatures on the veins, the only precaution that is necessary, he said, being not to transfix the vein, or suppurative phlebitis might be set up. The operation will be quite safe, if in passing the twisted suture, the surgeon keeps *beneath* the vein; if blood passes out, the vein will in all probability be transfixed. Both cases have done well.—*Lancet, Dec.* 29, 1855, *p.* 625.

168.—ON THE DIAGNOSIS OF CERTAIN FORMS OF INFECTING AND NON-INFECTING SYPHILITIC SORES.

By Henry Lee, Esq., Surgeon to the King's College and the Lock Hospitals. (Read before the Royal Medical and Chirurgical Society.)

The author observed that Jenner regarded a peculiar kind of inflammation to be essential to the production of the effects of the vaccine poison on the patient's constitution; and Willan made similar observations respecting the inoculation of the poison of small-pox. Unless the morbid process peculiar to each poison were gone through, although other constitutional effects might follow, yet that which constituted the peculiar action of the poison upon the patient's constitution would not. It was the same with respect to the syphilitic poison. The peculiar morbid process which indicated its introduction into the system was attended with inflammation of the adhesive character, as in the case of the cow-pox. The application of the syphilitic poison often gave rise to true suppuration in the inoculated part; but this was essentially a different morbid process to that by which the poison was introduced into the patient's system. Where a syphilitic sore at an early stage produced well-formed pus globules, that affection would not infect the patient's constitution. The virus from such a sore might be readily enough inoculated; much more certainly, indeed, than that from a genuine infecting sore.

Inoculation, therefore, was no test of the necessity of treating a patient by mercury, since suppurating sores, most readily inoculable, were not, if left to themselves, followed by secondary symptoms. Induration, the author regarded as affording no invariable evidence of the adhesive inflammation; for, in the first place, the product of the inflammatory action might be poured out upon the surface of the affected part, without infiltrating its tissue. This was as true of the adhesive as of the suppurative inflammation, and in neither case would there be any induration of the inflamed part; and, in the second place, the presence of induration gave no invariable indication of the nature of the inflammation which produced it. The sense of touch alone would not invariably indicate whether the effused lymph would remain such until absorbed, or whether it would subsequently become converted into pus: whether, in fact, the inflammation was of the adhesive or suppurative character. The information which the sense of touch failed to give, the examination of the secretion from the infected part would often supply. Examined under the microscope, from the different kinds of sores, the globules in the discharges would often appear very similar; but if acetic acid were added before examination, a clear distinction might be drawn between those cases in which true pus globules were formed and those in which they were not. When true pus globules were formed at an early period, and were not produced by artificial irritation, the author maintained that no constitutional syphilitic disease would result. The various points mentioned in the paper were illustrated by cases.—*Lancet, June* 7, 1856, *p.* 627.

169.—*Three Suggestions respecting Excision of the Knee-Joint.*—By Dr. Otho Vitalis.—[Dr. Vitalis says:]

Mr. Holt, senior surgeon to the Westminster Hospital, pointed out long ago, in his clinical lectures, the obvious necessity and advantage of having recourse to the three following expedients:—

1. Dividing the hamstring tendons.
2. Making an opening into the popliteal space; and
3. As regards the apparatus on which the limb is put after such an operation, to have (in the apparatus) an opening about seven or eight inches in circumference, through which the pus may escape, and the posterior wound be dressed, without disturbing the limb.

I will add a *fourth* suggestion, and that is, to put the operated limb in one of Ester's swinging fracture apparatus, made, of course, on purpose. By this last expedient the patient will be enabled to move in bed, be more comfortable, prevent bed-sores by change of position, and, therefore, increase the chances for a successful operation.

Two months ago, Mr. Holt had occasion to excise the knee-joint, and the three above-named suggestions were adopted with the best results to the comfort of the patient; and had the fourth expedient been put in practice, there is no doubt that the patient's comfort would have been greater, although from circumstances which will be transmitted for your publication with the general details of the case the operation unfortunately terminated fatally.—*Med. Times and Gaz., March* 22, 1856, *p.* 284.

170.—*On Confluent Small Pox.* By Dr. J. C. Cookworthy, Senior physician to the Plymouth Dispensary.—The object of my troubling you with this note, is to suggest the use of opium in confluent variola. I have seen a few grains of Dover's powder, given at night, productive of the greatest benefit, in persons of all ages, so soon as the eruption was completed; and have had reason to attribute the safety of some desperate and truly disgusting cases to the employment of this drug.—*Association Med. Journal, March* 15, 1856, *p.* 221.

171.—ON POISONING BY ACONITE ROOT.

By Dr. F. Headland.

After glancing at the history of the plant, and its use as a poison in ancient times, he referred to a number of statements made by authors in the middle ages, which showed that the poisonous properties of the plant were well understood by them. Poisonings by aconite in modern times were usually accidental. A number of cases in which the leaves and shoots had been eaten with fatal effects, were first briefly remarked upon, and then the cases of poisoning by aconite root which had been recorded in this country during the last few years were divided under two heads—(1.) Cases of an over-dose of some preparation given as medicine. This was generally the tincture. (2.) Cases in which the root had been eaten by mistake as an article of diet.

1. Four cases of poisoning by the tincture have been recorded during the last five years. Others are said to have happened. Of these four persons, two died from taking one fluid drachm of Fleming's tincture; one died from the effects of twenty-five minims of the tincture of the Lond. Pharm.; a fourth barely escaped from a dose of fifteen minims of the same. Two of these cases were attributable to carelessness in dispensers, one to ignorance of the power of the preparation. The author made three recommendations with the hope of obviating such accidents for the future: Firstly, to carry out the plan of the Dublin College, requiring druggists to keep all dangerous preparations in square or angular bottles, and the others in round bottles. Secondly, that the tincture of aconite, if used, should be made of one uniform strength, (as far as possible.) At least three different tinctures are in use in this country. Or, thirdly, that it would be still better to discard this tincture altogether, as an uncertain preparation, substituting for it a solution of aconitina of one fixed strength, containing 1-600th of a grain in each drop.

2. In nearly all the cases in which aconite root had been eaten as food, the singular error has been made of mistaking it for the root of the common horseradish,

and so scraping and eating it with roast beef. The author read accounts of four cases of this fatal error, which have occurred of late years, the last of them being the recent tragedy at Dingwall, in Scotland, when three gentlemen lost their lives. To show that such mistakes could not be committed by careful persons, specimens and drawings of horseradish and aconite root were exhibited and compared. The acid but not pungent taste of the aconite parings, and the pinkish colour which they assume when exposed to the air, were amongst the points noticed.

The author, having noticed a singular case of poisoned coffee, proceeded to state that there were two ways in which a case of aconite poisoning could be recognised: (1.) By the symptoms, which are very characteristic. (2.) By obtaining some of the poisoning principle, by a chemical process, from the contents of the stomach and matters vomited, and then trying its action upon small animals, or on the tongue, &c. There are no distinctive chemical tests for it, but 1–300th of a grain of the alkaloid (aconitina) would kill a mouse, and 1–1000th placed on the tip of the tongue would cause tingling and numbness.

With regard to the treatment of such cases of poisoning, Dr. Headland recommended the immediate and free administration of animal charcoal, mixed with water. This to be followed by a zinc emetic, then by brandy and ammonia. The charcoal has the power of retaining and separating the poisonous alkaloid, and if we have rendered help in time, the patient may perhaps be saved.—*Lancet, March* 22, 1856, *p.* 315.

172.—*Tests for Strychnia.*—[Mr. Maxwell Simpson, in a note to the editor of the 'Dublin Hospital Gazette,' says:]

As two important cases of supposed poisoning by strychnia will shortly be tried in England, I think it right to make it publicly known that strychnia is not the only substance that will produce a purple colour when brought into contact with a mixture of bichromate of potash and oil of vitriol, the test usually relied on for the detection of this poison. I have found that naphthalidam, an organic base derived from naphthalin, will produce, as might have been expected, an exactly similar colour when tested with the same mixture. The colour is best brought out by making a mixture of equal volumes of oil of vitriol and a cold saturated solution of bichromate of potash, and bringing it, while still warm, into momentary contact with a particle of the naphthalidam.—*Dublin Hospital Gazette, April* 15, 1856, *p.* 95.

173.—ON POISONING BY STRYCHNINE.

[We have made the following short analysis of the Symptoms of Poisoning by Strychnine, *which are known to have existed in several cases in the human subject*, as detailed in evidence at the late trial of William Palmer; and then we have given the symptoms which are said to have existed in Mr. J. P. Cook's case, in order that our readers may see not only the authenticated cases, but also compare them with the case of Cook. We think that when the reader has compared these cases, he will come to the conclusion that, independent of all chemical evidence, there can be no doubt that Cook's case was one of strychnine poisoning. The symptoms of each case are given nearly in the words of the different witnesses.]

1. Case of Agnes Sennett, or French.

She took three-quarters of a grain of strychnine in pills, and began in 20 minutes. There was continuous retraction of the mouth, the face suffused and red, the pupils dilated. Head bent back, spine curved, muscles rigid, and hard like a board; arms stretched out and rigid; hands clinched, severe paroxysms every few seconds; no lock-jaw as in ordinary tetanus, could open her mouth and swallow. Died in *about one hour and a quarter* after taking the poison, quite conscious all the time, *and seemed not to breathe* from tetanic rigidity.

Post mortem.—Hands not clinched after death, but semi-bent. Heart distended, stiff, and empty. (Dr. Corbet and Dr. Watson, Glasgow.)

2. Case of Mrs. Smyth.

Took the strychnine in solution—about 8 grains. The symptoms appeared in ten or fifteen minutes. She began by violently ringing the bell, first affected with spasms, then screamed loudly; teeth clinched; asked to have the arms and legs held straight, which were drawn up; continued to scream in agony; feet turned inwards. The last words were "turn me over," and she then died very quietly, one hour and a quarter after taking the poison, conscious all the time. The hands were much bent, feet contracted and turned inwards; soles of the feet hollowed up and toes contracted; the inner edge of each foot was turned up; a remarkable rigidity about the limbs.

Post mortem.—The contraction of the feet continued three days after death, the rest of the body not quite so rigid. No trace of disease. Heart contracted and perfectly empty. (Caroline Hickson, and Mr. Taylor, Romsey.)

3. Case of Mrs. Dove.

Complained first of her back; head thrown back, body stretched out. Eyes drawn aside and staring, prickings in the legs, and twitchings in the muscles and hands, like galvanic shocks. Wished to have her legs and arms rubbed, which were rigidly extended in the intervals between the spasms. Body stiff immediately after death. (Mr. Whitham.) Convulsive twitchings of the arms; able to swallow.

Post mortem.—No disease in any part of the body, which could account for death. Forty-two hours after death the hands bent and fingers curved; feet strongly arched; lungs congested. Muscles of the trunk dark and soft, forty-two hours after death. Effusion in the brain; serum tinged with blood in the membranes of spinal cord; membranes of spinal cord congested considerably. (Mr. Morley, Leeds.)

The muscles of the body were not in the least rigid forty-two hours after death; muscles of the head, neck, forearms, &c., were rigid. Fingers curved, and feet somewhat arched. (Mr. Nunneley, Leeds.)

4. Case of Mr. Clutterbuck.

He took only a quarter of a grain, and ultimately recovered. He was stiffened in every limb and his head drawn back. He desired to be moved, turned, and rubbed. He snapped at the spoon, conscious all the time. He survived the attack. (Mr. Moore.)

5. Another case of Mr. Nunneley's.

Post mortem.—Thirty-two hours after death—first saw the woman twelve hours after death. Appearances of the body substantially similar to the case of Mrs. Dove.

6. Two other Cases of Recovery reported by Mr. Nunneley.

The quantity taken was only one-sixth of a grain in each case—taken in solution. The symptoms came on much earlier than when taken in pills, viz., in a few minutes, as in Mrs. Smyth's case. There was in both cases a *want of power to control the muscles*, manifested by twitchings, rigidity, and cramp, more violent in the legs than elsewhere.

7. Mr. J. P. Cook's Case.

Asked to have his back rubbed; stiffness of the muscles of the neck; loud screams; convulsions for five or ten minutes, with stiffness of the limbs; quite sensible the whole time. The heart gradually weakened, and he diet quietly in about fifteen minutes from the first attack, and about one hour and a quarter from the taking of the poison. The hands clinched both before and after death; head

and neck before death bent backward; after death the body twisted or bowed so, that it would have rested on the heels and head. Just before death he desired to be *turned over*.

Post mortem.—Lungs healthy but congested; brain healthy; no extravasation and no serum; heart contracted and empty. (Dr. Harland.)

He sat up and beat the bed clothes with both arms, which were stretched out; sense of suffocation; jumping or jerking about his head, neck, and body; balls of the eyes projected. Requested to have one hand rubbed which was then stiff and stretched out, and did not move, but was half shut; the arm and body whilst being rubbed, seemed to twitch. The body continued to jump and jerk. He snapped at the spoon and got it fast between his teeth, and bit it hard; when snapping, he threw forward his head and neck. He swallowed a draught and vomited it; it smelt like opium. (Elizabeth Mills.)

[Now the above are the symptoms detailed by the respective witnesses in several cases of poisoning by strychnine in the human subject: and where we have cases related with such particularity in the human body, we need not go to experiments on animals to be enlightened on this important point. Neither do we think that if, in the case of Cook, the strychnine had been actually found, it would have made the case of poisoning much more clear. His symptoms bore such a striking similarity to those other cases in which strychnine was known to have been taken, and such a striking dissimilarity from all other diseases, except tetanus, that we have no hesitation in saying the verdict of the jury was a just one.

If we look over these cases we shall find that at first there was a *certain degree of voluntary motion*, enabling them to *move* and ring the bell—*to move* the *hands* —*to swallow*—*to talk*—they asked *to be rubbed and moved*. The accession of convulsions came on *suddenly*, without premonitory symptoms, *they screamed*, and death took place in about one hour and a half after taking the poison. And yet one of the medical witnesses for the defence, who must have heard all those symptoms detailed in court, actually expresses himself as follows:—"Cook had more power of voluntary motion than I have observed in animals under the influence of the poison. He sat up in bed, and moved his hands about freely, swallowed, talked, and asked to be rubbed and moved, *none of which if poisoned by strychnia could be have done*. The sudden accession of the convulsions is another reason for believing that they were not produced by strychnia. Other reasons for believing that the convulsions were not produced by strychnia, are, their sudden accession without the usual premonitory symptoms, the length of time which had elapsed between their commencement and taking of the pills, and the screaming and vomiting." Any comment on this evidence is unnecessary, and might be complained of: we therefore desist, and leave it to the judgment of our professional brethren.

Another medical witness for the defence, says, "It is not at all probable that a person after taking strychnia could *pull a bell violently*. Any movement would excite the nervous system, and bring on spasms. It is not likely that a person in that state could bear *to have his neck rubbed*." Now Mrs. Smyth *did* pull the bell violently after she had taken the poison, and Mrs. Dove desired her arms and legs to be *rubbed*. So much for facts against theory.

A third medical witness for the defence states, "a dose of strychnia sufficient to destroy life would hardly require one hour and a half for its absorption." Now Agnes Sennett died in about one hour and a quarter, and Mrs. Smyth in about the same time, a little more or less. So that we should place very little reliance on the judgment of these witnesses with respect to the action of the poison on the human subject. They may be very good experimenters on dogs and cats, but seem to be very little acquainted with the action of strychnine on the human body.

Let us just contrast this evidence for the defence with that of Dr. Todd, and Sir Benj. Brodie, whose opinions will always carry the greatest weight in this country.]

Dr. Todd.—"In my opinion the term tetanus ought not to be applied to disease produced by poisons, but I should call the symptoms tetanic, in order to distinguish the character of the convulsions. I have observed cases of traumatic tetanus. Except that in all such cases there is some lesion, the symptoms are precisely the same as those of idiopathic tetanus. The disease begins with stiffness about the

jaw. The symptoms gradually develope themselves and extend to the muscles of the trunk."

When the disease has begun is there any intermission?—"There are remissions, but they are not complete; only diminutions of the severity of the symptoms, not a total subsistence. The patient does not express himself as completely well, quite comfortable. I speak from my own experience."

What is the usual period that elapses between the commencement and the termination of the disease?—"The cases may be divided into two classes. Acute cases will terminate in three or four days, chronic cases will go on as long as from 19 to 22 or 23 days, and perhaps longer. I do not think that I have known a case in which death occurred within four days. Cases are reported in which it occurred in a shorter period. In tetanus the extremities are affected, but not so much as the trunk. Their affection is a late symptom. The locking of the jaw is an early one. Sometimes the convulsions of epilepsy assume somewhat of a tetanic character, but they are essentially distinct from tetanus. In epilepsy the patient always loses consciousness. Apoplexy never produces tetanic convulsions. Perhaps I may be allowed to say, that when there is effusion of blood upon the brain, and a portion of the brain is involved, the muscles may be thrown into short tetanic convulsions. In such case the conciousness would be destroyed. Having heard described the symptoms attending the death of the deceased, and the *post mortem* examination, I am of opinion that in this case there was neither apoplexy nor epilepsy.

"There are poisons which will produce tetanic convulsions. The principal of those poisons are nux vomica, and those which contain as their active ingredients, strychnine and brucia. I have never seen human life destroyed by strychnine, but I have seen animals destroyed by it frequently. The poison is usually given in a largish dose in those cases, so as to put an end to the sufferings and destroy life as soon as possible. I should not like to give a human subject a quarter of a grain. I think that it is not unlikely that half a grain might destroy life; and I believe that a grain certainly would. I think that half a grain would kill a cat. The symptoms which would ensue upon the administration of strychnine when given in solution—and I believe that poisons of that nature act more rapidly in a state of solution than in any other form—would develope themselves in ten minutes after it was taken, if the dose was a large one; if not so large, they might be half an hour or an hour before they appeared. These symptoms would be tetanic convulsions of the muscles, more especially those of the spine and neck; the head and back would be bent back, and the trunk would be bowed in a marked manner; the extremities also would be stiffened and jerked out. The stiffness, once set in, would never entirely disappear; but fresh paroxysms would set in, and the jerking rigidity would reappear; and death would probably ensue in a quarter of an hour or so. The difference between tetanus produced by strychnine and other tetanus is very marked. In the former case, the duration of the symptoms is very short, and instead of being continuous in the development, they will subside if the dose has not been strong enough to produce death, and will be renewed in fresh paroxysms; whereas in other descriptions of tetanus the symptoms commence in a mild form, and become stronger and more violent as the disease progresses. The difficulty experienced in breathing is common alike to tetanus, properly so called, and to tetanic convulsions occasioned by strychnine, arising from the pressure upon the respiratory muscles. I think it is remarkable that the deceased was able to swallow, and that there was no fixing of the jaw, which would have been the case with tetanus proper, resulting either from a wound or from disease. From all the evidence I have heard, I think that the symptoms which presented themselves in the case of Mr. Cook arose from tetanus produced by strychnine."

Cross-examined by *Mr. Grove, Q.C.*—"There are cases sloping into each other, as it were, of every grade and degree, from mild convulsions to violent tetanic spasms. I have published some lectures upon diseases of the brain, and I adhere to the opinion there expressed, that the state of a person suffering from tetanus, is identical with that which strychnine is capable of producing In a *pathological* point of view, an examination of the spinal cord shortly after death, *in investigating* supposed deaths from strychnine, is important. The signs of de-

composition, however, could be easily distinguished from the evidences of disease which existed previously to death; but it would be difficult to distinguish in such a case whether mere softening resulted from decomposition or from pre-existing disease. There is nothing in the *post mortem* examination which leads me to think that deceased died from tetanus proper. I think that granules upon the spinal cord, such as I have heard described, would not be likely to cause tetanus. I have not heard of cases treated by Mr. Travers. In animals to which strychnine has been administered, I cannot say that I have observed what you call an intolerance of touch; but by touching them the spasms are apt to be excited. That sensibility to touch continues as long as the operation of the poison continues. I have examined the interior of animals that have been killed by strychnine; but I have not observed in such cases that the right side of the heart was usually full of blood. It is some years since I made such an examination; but I am able, nevertheless, to speak positively as to the state of the heart. It was usually empty on both sides. I do not agree with Dr. Taylor or other authorities, in the opinion that in cases of tetanus animals die asphyxiated. If they did, we should invariably have the right side of the heart full of blood, which is not the case. I think that the term asphyxiated, or suffocated, is often very loosely used. I know from my reading that morphia sometimes produces convulsions; but I believe that they would be of an epileptic character. I think that the symptoms from morphia would be longer deferred in making their appearance than from strychnine; but I cannot speak positively on the point. Morphia, like strychnine, is a vegetable poison. I have not observed in animals the jaw fixed after the administration of strychnine."

Re-examined by the *Attorney-General*—"Whatever may be the true theory as to the emptiness of the heart after strychnine, I should say that the heart is more ordinarily empty than filled after tetanus. I think that the heart would be more contracted after strychnine than in ordinary tetanus. I do not believe that a medical practitioner would have any difficulty in distinguishing between ordinary convulsions and tetanic convulsions."

Sir Benjamin Brodie.—"I have heard the symptoms which accompanied the death of Mr. Cook, and I am of opinion that so far as there was a general contraction of the muscles, they resembled those of traumatic tetanus; but as to the course those symptoms took they were entirely different. I have attended to the detailed description of the attack suffered by Mr. Cook on the Monday night, its ceasing on Tuesday, and its renewal on the Tuesday night. The symptoms of traumatic tetanus always begin, so far as I have seen, very gradually, the stiffness of the lower jaw being, I believe, invariable, the symptom first complained of—at least, so it has been in my experience. The contraction of the muscles of the back is always a later symptom—generally much later. The muscles of the extremities are affected in a much less degree than those of the neck and trunk, except in some cases where the injury has been in a limb, and an early symptom has been spasmodic contraction of the muscles of that limb. I do not myself recollect a case of ordinary tetanus in which occurred that contraction in the muscles of the hand, which I understand was stated to have taken place in this instance. Again, ordinary tetanus rarely runs its course in less than two or three days, and often is protracted to a much longer period. I knew one case only in which the disease was said to have terminated in so short a time as twelve hours; but probably in that case the early symptoms had been overlooked. Again, I never knew the symptoms of ordinary tetanus to last for a few minutes, then subside, and then come on again after twenty-four hours. I think that these are the principal points of difference which I perceived between the symptoms of ordinary tetanus and those which I have heard described in this case. I have not witnessed tetanic convulsions from strychnine on animal life. I do not believe that death, in the case of Mr. Cook, arose from what we ordinarily call tetanus—either idiopathic or traumatic. I never knew tetanus result from a sore throat or from chancre, or from any other form of syphilitic disease. The symptoms were not the result either of apoplexy or of epilepsy. Perhaps I had better say at once that I never saw a case in which the symptoms that I have heard described here arose from any disease. When I say that, of course I refer not to particular symptoms, but to the general course which the symptoms took."—*The "Times" Report of the Trial of William Palmer, for Poisoning Mr. J. P. Cook, at Rugeley*, pp. 35—60.

A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE PRECEDING PAGES: SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

AFFECTIONS OF THE SYSTEM GENERALLY.

AGUE.—In cases of long standing, which resist the usual method of treatment, the following has been remarkably successful: ℞. Potass. iodid. 3iss.; aquæ menth. pip. ℥xij. M. sum. ℥i. 4ta. hora. (Mr. E. F. Sankey, p. 34.)

CANCER.—With regard to operation. *Encephaloid* may be more frequently removed, with relief or success, than scirrhus, especially if it occurs in the young, and is removed sufficiently early and freely. When it returns it is with extreme violence. *Scirrhus*, though often removed, is very rarely cured. When adherent, or the glands are affected, it is worse than useless to operate, relapse is certain and rapid. If very chronic and small, operation may convert a comparatively harmless tumour into an active agent of destruction. In epithelioma, the rule is to operate again and again if you can remove all. When the disease originates in mucous membrane, as the rectum, the tongue, the gums, you have but little chance of success. The application of the actual cautery after removal is a valuable aid. The cicatrix of a burn is not a favourable nidus for epithelial growths. (Dr. M. H. Collis, p. 45.)

Landolfi's treatment consists in transforming a malignant tumour into an innocent one by cauterization. His specific formula is composed of equal parts of the chlorides of bromine, zinc, gold, and antimony, mixed with a sufficient quantity of flour to form a viscid paste. The chloride of bromine is the essential ingredient. Before applying it, the healthy parts surrounding the tumour are covered with strips of cloth, smeared with cold cream; the specific paste must be spread on lint and applied to the part affected, it may be kept on for 24 hours, and when removed it must be replaced with a poultice, or dressed with basilicon ointment. (Dr. Lasegue, p. 48.)

INTERMITTENT FEVER.—The sulphate of quinidine, of the new Bogota Bark (*China Bogotensis*,) possesses very considerable antiperiodic powers. It may be much less expensive, and quite as certain in its effects as quinine. (Dr. C. B. Guthrie, p. 28.)

RHEUMATISM.—The waters of Vichy and Carlsbad are very valuable in gout, rheumatism, gravel, and affections of the liver and spleen, owing to their strong alkaline character, which is principally due to the large quantity of bicarbonate of soda which they contain; they are very mild and gentle in their operation, and not like the waters of Homburg, Weisbaden, and Kissengen, which contain chloride of sodium, and are severely purgative. (Dr. Cahill, p. 295.)

Acute.—You must be guided entirely by the specialities of the case; there are no specifics; some preparation of iron with liquor potassæ may be given. When the liver is much deranged, calomel and rhubarb; when the urine is scanty, colchicum. As tonics, quinine and iron, alone or combined, may be given. Quassia, with an alkali, suits remarkably well. Wine is the best and most efficacious tonic in weakly habits; an opiate at bedtime is sometimes necessary. Warm fomentations are the best local applications. (Dr. J. Bell, p. 42.)

SCARLET FEVER.—We here give a plan of treatment, which has been peculiarly successful. In the first place you must keep the bedroom cold, be it winter or summer; throw open the windows and remove all curtains. If it be winter, allow the patient one sheet and one blanket; if summer, a sheet only to cover him. If the tonsils be much affected, apply a barm and oatmeal poultice to the throat *night* and morning, and give the infusion of roses with an excess of acid and sugar

every three hours; avoid purgatives, at least for the first ten days; you must not purge if the bowels be not opened for a week; too free purgation in scarlet fever is a fruitful source of dropsy, disease, and death. Leeches, blisters, and baths are inadmissible. The diet must be strictly antiphlogistic for the first week; avoid broths and stimulants of every kind, but allow as much cold water as the patient chooses. In five or seven days, when the skin begins to cool, you may close the windows and allow more covering, but still do not purge. The diet must be gradually improved as recovery progresses. Another very important regulation is never to allow the patient to leave the house under the month in the summer, and under six weeks in winter. (Mr. P. H. Chavasse, p. 29.)

Typhoid Fever.—Typhoid is known by its comparatively non-contagious nature, by the less development of cerebral symptoms, by the less depression, by the scattered rose-coloured rash not persistent, constantly renewed, disappearing temporarily on pressure, and by the existence of disease of Peyer's glands, with diarrhœa, &c. (p. 19.)

In the early stage the same treatment may be adopted as recommended for typhus; but when the abdominal disease becomes apparent, great comfort will be afforded by a large warm poultice to the belly, and afterwards counter-irritants, as blisters, sol lytæ, or warm turpentine. Internally you may give cautiously small doses of mercury, as hyd. c. creta, with pulv. ipecac. co. If the diarrhœa be very severe, the mist. cretæ co. with tin. catechu, or kino, will be found efficacious. But, perhaps, the most valuable remedy is the acetate of lead, both by the mouth and rectum, with solution of starch and some tincture of opium. (Dr. R. H. Semple, p. 21.)

Quinine is most useful in the bilious form of typhoid, when it displays a remittent character, or a tendency to relapse. It is also very valuable where the fever, although not very intense, is extremely prolonged, without any material change; it may then be given, in doses of three to five grains, three times a day. When given in large doses, it may produce cinchonism. In two cases, by Dr. Robertson, it produced coma; in other cases it has been found to cause violent headache, and increase the tendency to coma, and hence it calms the watchfulness and delirium of fever. (Dr. T. B. Peacock, p. 22.)

Typhus Fever.—Typhus is known by being very contagious, by the greater prevalence of cerebral symptoms, by the greater depression, by the dark mulberry rash, very much resembling measles, persistent, not renewed, and not fading on pressure, and by the absence of disease of Peyer's glands. (p. 18.)

In the first place you must open the bowels with castor oil, and prescribe some stimulating diaphoretic saline. If there be delirium, shave the head and apply a blister to the neck; if the pulse loses power and becomes rapid, beef tea and wine should be given often in small quantities; if the symptoms of sinking increase, and the pulse be feeble and fluttering, with delirium, brandy must be given freely, and as medicine the stronger diffusible stimulants should be prescribed, as the spt. ammon. aromat., spt. æther. co., and at the same time keep up with strong beef-tea. With respect to opium, it would be injurious during the early stages; but where there is great restlessness and irritability, with great weakness, opium is invaluable: it raises the pulse, quiets the patient, and procures sleep. (Dr. R. H. Semple, p. 20.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Chorea.—Blisters have often been beneficial when repeatedly applied to the extremities of the side most affected. If the chorea be intense or chronic, a blister may be applied to the back of the neck. (Dr. M. Simon, p. 70.)

Epilepsy.—Dr. Prout says that alkalies, when assisted by heat, rapidly convert urea into carbonate of ammonia. From this we may infer, that when they exist in excess in the blood, they will also prevent its elements combining so as to form it, and thus noxious matters will be retained which ought to be eliminated as urea. This, we know, will act on the brain and the spinal cord, and probably account for many of the symptoms from which epileptics suffer so much, if not for the

epileptic convulsion itself. Such being the supposed cause, the greatest benefit has been derived from an acid treatment, externally, by means of the nitro-muriatic acid bath, for twenty minutes every night, and by giving twenty minims of the dilute nitro-muriatic acid twice a day, a compound rhubarb pill every night, and allowing subacid fruits, lemon juice, vinegar, &c. This treatment, by acids, has been tried with wonderful success in many cases which had for years been considered hopeless, and in which almost every thing likely to relieve had been tried without success. In the cases where it has been most beneficial there has been a deficiency of urea in the urine and a cloud of phosphates deposited on boiling. (p. 53.)

From the uniform deficiency of organic principles, as urea, and the excess of mineral matters, especially chloride of sodium, in the urine, we may infer that they must have some connection with the state of the blood and the disease in question, as cause and effect; this is supported by the results of the acid treatment, which, as it corrects the abnormal state of the urine, cures the disease. (Dr. H. Hunt, p. 60.)

Epilepsy, Chorea, &c.—The oxide of zinc is very useful as a tonic and anti-spasmodic in all cases of general nervous debility. It may be given without the slightest fear of danger, in doses gradualy increased from fifteen to thirty grains daily. (Dr. W. Marcet, p. 62.)

Oxide of zinc and oxide of silver are now very extensively used in nervous affections. The most agreeable form of the medicine is the syrup of the iodide of zinc. Do not mistake hysteria for epilepsy; in the latter the loss of consciousness is extreme, but not in hysteria. (*Lancet, Dec.* 29, 1855, p. 626.)

Chronic Hydrocephalus.—As a last resource, you may tap with a common trocar, and inject two or three ounces of a solution of tincture of iodine (fourteen minims to two ounces), previously heated to the temperature of the body. It is not attended with the danger which at first sight might be supposed, and it will have a very perceptible effect in controlling the secretion. (Dr. J. M. Winn, p. 68.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

Aneurism *of the Innominata.*—These are cases where you can do no good by operative interference. If the tumour project, you must apply steady firm pressure over it, by means of a suitable pad; the effect of this will be to thicken and strengthen the coats of the artery, and may be very beneficial in preventing its increasing. (Mr. F. C. Skey, p. 167.)

Auscultation.—The influence of pressure may produce, intensify, or modify certain sounds heard over the præcordial region; therefore, when you apply the stethoscope over the base of the heart, be careful not to exercise much pressure, or you may produce a murmur very much simulating that of valvular disease, and I am inclined to think, that systolic basic endocardial murmurs, so heard, have their origin in the pulmonary artery. The pressure may be produced either by the patient in expiration, or by the physician, and it is a common cause of the basic systolic murmur heard in anæmia; but it may sometimes be similarly produced when the patient is not anæmic. The conditions favouring this are, narrowness of the chest from before backwards, flexibility of the thoracic parietes, and anæmia. (Dr. W. Jenner, p. 79.)

Hæmoptysis.—The only remedies to be trusted, in severe cases, are, turpentine, gallic acid, chloride of sodium, or nitre with digitalis; acetate of lead, or alum, is not sufficient to meet the danger. You may give ten to thirty drops of turpentine, every hour, and especially in weak cachectic individuals; it is less suitable for the young and plethoric. Gallic acid is preferable to other astringents, because it does not exert the same desiccating and constipating effects as tannin, &c. If you give chloride of sodium, one to two and a half drachms will be the dose. (M. Aran, p. 78.)

Hemorrhagic Diathesis.—The indications are threefold, viz.—1st. To invigorate the powers of assimilation, and healthy sanguification. 2nd. To supply rich, *plastic* tissue-forming materials. 3rd. To arrest and prevent the hemorrhage. *You must* put the patient at once on full diet—mutton chop, eggs, and milk, and

you may give as medicine, the following, three or four times a day: Acid. gallic. gr. v.; acid. sulph. dil. ℥ xx.; dec. cinchonæ ℥iss. If the hemorrhage be from the mouth, apply turpentine with a sponge, three times a day. If the surface of the skin is extensively ecchymosed, give acid. sulph. dil., ferri sulph., and inf. calumbæ; and if there be restlessness, morphia at night. (Dr. H. Salter, p. 72.)

Varicose Veins.—The best of all plans for treating these troublesome cases, is to make about a dozen small issues with the potash paste, along the course of the enlarged venous trunks. Their varicose condition disappears with the healing of the issues. (Mr. F. C. Skey, p. 167 and 306.)

Ligature of.—The operation will be quite safe, if the needle pass *beneath* the vein, the only precaution necessary being not to transfix the vein, or suppurative phlebitis may be set up. (Mr. Erichsen, p. 307.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

Artificial Respiration, *New Method of.*—The patient must be placed in the prone position, so that the tongue may fall forwards, and leave the glottis patent; the body must then be turned fully on one side, and again slowly replaced on the stomach. These movements must be made alternately, gently, and equably, *sixteen* times in a minute. When laid on the stomach, pressure is made on the thorax and abdomen, and expiration takes place; when turned on the side, pressure is removed, and inspiration follows; and thus respiration is efficiently performed, and this without bellows, syringe, or any apparatus, all of which are not only unnecessary but dangerous. (Dr. Marshall Hall, p. 89.)

Asphyxia.—The special remedy is the restoration of respiration. To elevate the temperature, or to accelerate the circulation, by the warm bath and other means, without having first secured the return of respiration, tends not to save but to destroy life. It is a well established fact, that an animal bears the suspension of respiration in proportion, not to the warmth, but within certain limits to the lowness of the temperature. The only remedy is artificial respiration; and the only method of effecting this properly is to place the patient on his belly, in the prone position, so that the tongue may fall forwards, and not obstruct the passage through the glottis, which it would do in the supine position, by falling backwards. Again, when the body is in the prone position, the thorax and abdomen will be compressed, and expiration will take place; let the body be now turned gently on the side, through rather more than the quarter of a circle; by this the pressure will be removed, and effectual inspiration take place.

Instead of the rules adopted by the Royal Humane Society, the following are proposed:—

1. Send for medical aid, clothing, &c.
2. Treat the patient on the spot.
3. Place the patient gently on the face, to allow any fluids to flow from the mouth.
4. Raise the patient, and endeavour to excite respiration by snuff, hartshorn, tickling the fauces, &c.; if these fail, lose no time, but—
5. Replace the patient on his face, that the tongue may fall forwards, and leave the windpipe free, then turn the body completely on the side and a little more; and then again on the face, alternately, to induce inspiration and expiration, sixteen times in the minute. Rub all the limbs and trunk, energetically, with the warm hands, upwards, making firm pressure;—
6. Omit the warm bath, until respiration is re-established. (Dr. Marshall Hall' p. 88.)

The actual cautery, when properly applied, is far superior to all other means to bring about reaction,—is is the most speedy and certain in its action, and may be used so long as there is the slightest respiratory movement. Deep and long parallel lines must be traced by a strongly-heated iron along the upper and lateral parts of the chest, opposite the four or five upper ribs. By this means, the general sensibility may be aroused, after every other remedy has failed. (M. Faure, p. 91.)

Chronic Bronchitis.—We believe the attacks of this disease to be often nervous

and spasmodic rather than inflammatory, and the aim of our treatment should not be to increase the secretion, but to remove the nervous condition on which the cough, secretion, dyspnœa and tightness depend. For this purpose banish expectorants, and give small doses of morphia, say the 1-16th of a grain, four times a day. As a preliminary step, remove all sources of irritation, and attend to the liver and bowels. (Dr. E. Smith, p. 101.)

Consolidated Lungs.—In cases of this kind, from pneumonia, the following is found to be the most effectual plan of treatment:—Wine, six ounces, daily; a draught every third hour, composed of julep of acetate of ammonia, with aromatic spirits of ammonia in excess; and strong turpentine stupes, carefully applied, every night and morning, over the back of the chest and site of the consolidated lung. Diet moderately stimulating. (Dr. Todd, p. 99.)

Hooping Cough.—This is essentially a nervous disease, and our treatment must be directed to the removal of the spasm. The secretion which is present is chiefly due to the violence of the cough, and consequently should not be increased by expectorants. You must remove all sources of irritation, give nutritious food, remove to a pure air, and give morphia to relieve the spasm. The dose to begin with must be very small, (say the sixty-fourth of a grain to an infant four months old), and rapidly increase the quantity until a slight drowsiness is perceptible, and then regard that as the measure of the dose; this effect must be maintained, and in the course of a few days the spasm will cease, the cough be relieved, and the child will soon be well. (Dr. E. Smith, p. 101.)

Phthisis.—Dr. Addison believes it to be nothing more than the acute stage of strumous pneumonia. Mere tubercles may lie dormant for years, if inflammation of an active kind be not set up. (Dr. Addison, p. 96.)

Pleuritic Effusions.—Nature, if assisted by proper remedies, as mild diuretics, composed of digitalis and squills, with alteratives and large blisters to the chest, will often remove serous effusions from the pleura. Paracentesis thoracis is one of the worst and most deceiving operations in general practice. A serous cavity will almost invariably be changed into a cavity pouring out pus in almost incredible quantities, and beyond the power of the system to stand against. (Dr. Addison, p. 100.)

Stethoscope, *New Form of.*—The sounds of the chest will be rendered much more intense and distinct, by using an instrument having two ear pieces instead of one. This may be made of gutta percha; the ear pieces may be attached to curved tubes, diverging from, but continuous with a single tube, having the usual bell-shaped extremity. (Dr. A. Leared, p. 95.)

AFFECTIONS OF THE DIGESTIVE ORGANS.

Catarrh of the Stomach.—This generally occurs in drunkards, and in the treatment of it you must first remove the exciting cause. The diet must be regular and nutritious, and you may give some bitter infusion, with a drachm of the tincture of the same, three times a-day. To relieve bilious congestion and constipation, give five grains of inspissated ox-gall, with three grains of extract rhubarb at night. Opium, or the tincture of cannabis Indica, with aromatic spirit of ammonia, may be necessary to procure sleep. You must also make the patient take good solid nourishing food, free from osmazone, as chickens, rabbits, sheep's trotters, &c., with boiled rice, &c. Dilution of the contents of the stomach, before breakfast, to wash out the mucus and allow of the application of remedies, is very important. As astringents, we may use acetate of lead, sulphate of zinc, sulphate of alum, or the mineral acids. The nitrate of bismuth is very efficacious in restraining secretion, it may be combined with prussic acid, opium, or chalk; it has a soothing effect on irritated mucous membrane, especially if there be vomiting or any inflammatory complications of the chest. (Dr. Lees, p. 108.)

Charcoal, *Medicinal Properties of.*—Pure charcoal is very useful in those disorders of the mucous membranes when the secretions are inordinate in quantity, or *offensive in* condition, as in the bowel affections of children, or the early stages of *diarrhœa*; in doses of ten or fifteen grains, combined with other remedies, it acts

like a charm; it may be given in larger doses, say 30 or 40 grains, in gastralgia, and seldom fails to give relief. In excessive ptyalism, it speedily moderates the discharge and corrects the fœtor; also; when there are small painful ulcers within the mouth, on the lips, cheeks, &c., applied as a wash, with mel. rosæ, &c., it has proved eminently serviceable. (Mr. J. Bird, pp. 120 and 319.)

Cholera.—If in collapse, apply the hot wet sheets and hot turpentine frictions. During convalescence, mustard over the kidneys to promote the secretion of urine. Gallic acid, in five-grain doses, with one grain of calomel after every evacuation, is the staple remedy; for the severe vomiting, give the subnitrate of bismuth and carbonate of soda, or aromatic spirit of ammonia, sulphuric æther and laudanum. At the same time support by new milk, broths, &c. (Dr. D. Jamison, p. 293.)

We must extinguish and destroy the noxious poison at its source. First, by causing the dejections of cholera patients to be received into vessels containing a solution of chloride of zinc. Second, by daily flooding drains, privies, &c., with chemical agents of the same class. (Dr. Budd, Bristol, Edin. Med. Journal, Dec. 1855, p. 471.)

Gastritis, *Chronic.*—Commence by applying four or six leeches every third day, for three or four times, and follow this up by counter-irritation. Diet must be mild and farinaceous. Regulate the bowels by enemata, and keep up the function of the liver by mild mercurials. To allay the morbid sensibility, you may give extract of hyoscyamus, or of lactucarium, every night, if there be much pain; hydrocyanic acid, with bicarbonate of soda, or small doses of morphia. The nitrate of silver appears to be peculiarly advantageous in those cases, in which the tongue is shining and smooth. When the inflammatory symptoms are subdued, you must give nutritious food, mild stimulants, and vegetable tonics; if these agree, then bismuth, iron, quinine, &c. (Dr. Lees, p. 107.)

Dr. Osborne says that the symptoms of diseases of the gastric glands are sour eructations and vomitings, with a sense of distension after eating. For these symptoms he advises six or eight drops of the tincture of opium to be taken half an hour before meals. These glands are subject to ulceration, which is common in the intemperate. The treatment should be by leeches, counter-irritation, strict regulation of food, and the exhibition of nitrate of silver in quarter or half-grain doses, with opium. The bowels must be moved by enemata, or the compound colocynth pill. (Dr. Lees, p. 110.)

Gastric Ulcer.—There are many who cannot dissever in their minds the idea of inflammation from that of ulceration, but we believe that the perforating gastric ulcer is essentially the result of a local failure of nutrition, and not in any degree *necessarily* connected with inflammation. Our chief object in treatment must be to improve the general condition of the system, by good nutritious diet, allowing five or six hours' rest between the meals; we must attend to the general mucous surface, and invigorate the organ as much as possible. For this purpose, counter-irritation, with sedatives and astringents, may be necessary at first; and, as soon as they can be borne, tonics, as acids, bitters, quinine, iron, and cod-liver oil. If there be much vomiting and pain, which the ordinary remedies fail to relieve, order strychnine, one-sixteenth of a grain; muriatic acid, one minim; water, one ounce; three times a-day. (Dr. C. H. Jones, p. 111.)

Habitual Constipation.—When from muscular atony of the intestine tube, nux vomica in half-grain doses, combined with the compound rhubarb pill, possesses decided efficacy, by supplying tone to the weakened muscular coat, which enables it to respond to other irritants. (Dr. Peacock, Dr. A. Clark, p. 121.)

Hare-Lip.—The safest period for operation is from the termination of the first week to the end of the third month. The scissors are generally to be preferred for making the incisions, the division will heal equally well by the first intention as if made with the bistoury; the cut is much neater and uniform, and more easily managed. The form of needle used is important; coarse silver pins and hare-lip needles, with removable points, have often defeated the objects of the surgeon; the common darning needle is undoubtedly the best; when the silk is applied the ends of it should be clipped off. The needle must be introduced at a considerable distance from the edge of the lip, and not in accordance with the rule, "that the point of entrance must be at a distance from the edge equal to the thickness of the lip;"

In addition to the twisted sutures a fine interrupted suture will be required on the inside of the red border of the lip, to prevent the child's tongue separating the edges. The pins must be removed on the first appearance of ulceration. It will be unnecessary to use any bandage, and in the application of plasters great care must be taken that they do not press upon or interfere with the needles. In difficult cases, Mr. Hainsby's contrivance to press by a spring and pad upon the cheeks, to keep them forward, will be valuable. (Mr. R. G. H. Butcher, p. 171.)

Hernia, *Radical Cure of.*—For a description of this operation see page 182. The advantages claimed for it are, that there is no danger of peritonitis, the spermatic cord and femoral vessels are not injured; the hernial orifice is narrowed and partly obliterated, and in front is placed a powerful obstacle which fortifies it. (M. De Roubaix.)

Strangulated.—From the notes of 100 cases we find that operation without opening the sac is much more common in femoral than in inguinal hernia. The neck of an inguinal hernia offers greater resistance to the reduction of a strangulated bowel than the neck of a femoral, of course excluding quite recent, and large irreducible inguinal hernia. The risk of leaving the bowels unrelieved for thirty hours and then operating without opening the sac, would be greater than relieving the bowels ten hours earlier and opening the sac. We owe most of our success, in all cases, to the early period of operation. (Mr. N. Ward, p. 182.)

When operating in these cases, let it be your rule to endeavour to relieve the stricture without opening the sac; you gain nothing by opening it, but you may lose a great deal by doing so without necessity for it; in some cases, however, there may be reasons to deviate from it, as when the stricture is internal to the sac, &c. (Mr. E. Cock, p. 179.)

Nip up a fold of skin over the neck of the sac, then run a sharp-pointed bistoury through it, so as to make an incision about one and a half inches long. This is a much safer plan than cutting down upon the hernia; next nip up the tissues beneath with the forceps and divide them, using the knife horizontally, you will thus expose the peritoneum, but do not open it if you can avoid it; divide the stricture external to sac with the probe-pointed knife, using your finger as the director; having divided the stricture, press the sac so as to empty it of its contents, it will then readily be reduced. You may be obliged to open the sac, in some cases, when the stricture is internal to it, or when you have reason to believe the intestine gangrenous. (Mr. S. Solly, p. 180.)

Palate, *Deficiency of.*—In operating upon the hard palate, knives of a peculiar construction will be required, bent at various angles for different parts of the mouth. When the soft parts have been carefully detached from the bone, the edges should never be brought together by sutures, unless they fall and meet together without traction or pressure. When the curtains or flaps do not meet of their own weight in the mesial line, lateral incisions may be required. You must not attempt too much at once, because the separation of a large surface greatly interferes with its nutrition, for both the anterior and posterior palatine arteries would be divided at the same time, and sloughing thereby rendered probable. Operate upon the hard palate first, and thus, although the anterior palatine artery be divided, the flap will obtain ample nourishment from the posterior vessels. In operating on the soft palate, divide the levator palati. To do this, you must keep the flap on the stretch, by means of a suture passed through it; then run a sharp-pointed double-edged knife through the side of the palate inwards and upwards, on the inner side of the hamilar process, which can be readily felt through the soft parts; the handle is next raised, and a sweeping cut made along the posterior part of the soft palate; the levator will thus be freely divided. (Mr. G. Pollock, p. 177.)

Peritonitis *from Perforation.*—Our objects of treatment must be, *first:* To arrest the peristaltic motion of the bowels, with a view of preventing fæcal effusion and favouring adhesions; for this purpose you must give opium in full and repeated doses, say one grain every hour. Should there be incessant vomiting, it must be given by the rectum, and the system kept fully under its influence. *Second*, to subdue the inflammation by the full but judicious administration of *mercury* and extensive counter-irritation. (Dr. J. S. Hughes, p. 113.)

Acute Peritonitis from Rupture.—The system must be kept fully under the in-

fluence of opium for a week or longer, until the acute symptoms abate. Mercury may be best introduced by inunction to the thighs or axillæ, or calomel may be given with the opium if the stomach will bear it. It must be continued until salivation is established. Thirst may be relieved by ice. (Dr. J. S. Hughes, p. 115.)

Piles.—When you have piles associated with protrusion of the rectum, the application of nitric acid is much safer, and quite as effectual a remedy as the ligature and the knife, and there will not be the danger from phlebitis which sometimes follows these operations. (Mr. H. Smith, p. 122.)

Sea Sickness.—We may often succeed in preventing an attack of this by creasote, and the best and most convenient form is to have it made up in lozenges, about one drop in each, one or two of which can be taken when necessary. (Med. Times and Gazette, Oct. 13, 1855, p. 369.)

Tænia.—Give one and a half or two drachms of the ethereal tincture of the rhizome of the male fern in a mucilaginous draught, and follow this by a saline laxative. The worm will be expelled in about five hours. (Dr. W. W. Gull, p. 122.)

Tongue, *Deep Fissures of.*—Apply locally the nitrate of copper to the ulcerated surfaces, and give chlorate of potash in from five to fifteen grain doses, with bark and sarsaparilla. The nitrate of copper is almost invaluable in this class of ulcers, and it will be found equally valuable in small excavated semi-phagedenic ulcers which occur on the genitals. It is a very deliquescent salt, and can only be applied in the liquid state, by means of a small piece of cedar. (Dr. C. Fleming, p. 178.)

AFFECTIONS OF THE URINARY ORGANS.

Bright's Disease.—Liquor ammoniæ acetatis, by acting on the skin and relieving the congested condition of the kidneys, is the best of all remedies for this disease; diuretics at the same time being strictly avoided, but not mercurials. (Dr. Addison, p. 237.)

Diabetes.—This disease is more under the control of regimen than medicine. Milk is very proper in these cases, as diabetic sugar is never generated from milk sugar. Gluten bread has recently been much recommended, but fine bran bread is preferable. Maccaroni is also highly praised. Among medicines, citrate of ammonia and opiates are, perhaps, the best. Some recent researches would point to diabetes as a peculiar form of nervous disease, rather than a renal or hepatic affection. (p. 237.)

Tests for Sugar.—Kledzinsky's fluid, composed of potash, glycerine, and saturated solution of sulphate of copper, when added to diabetic urine and boiled, turns it of an opaque amber colour; with non-saccharine urine, there is a white flocculent deposit. *Maumene's Test* is made by soaking white merino or any woollen fabric in a solution of bichloride of tin, and drying in a water bath: when dipped in suspected urine and carefully dried, the cloth becomes of a darkish brown or almost black colour. (Mr. B. W. Richardson, p. 128.)

Liebig's Method for the Rapid Detection of Sugar.—Dissolve a small quantity of ox-gall in the suspected fluid in a test tube; then add rapidly an equal quantity of strong sulphuric acid. If sugar is present, a beautiful purpurine is immediately produced. (M. Botte, p. 129.)

Hydrocele, *Radical Cure of.*—After the withdrawal of the fluid, introduce a few grains of red precipitate into the sac through the canula, by means of a director. This is quite safe, is uniformly successful, and will answer when iodide injection fails. (Mr. Lloyd, p. 213.)

Irritable Bladder.—Where there are all the worst symptoms of stone, without any appreciable cause, if the usual remedies fail, you may perform cystotomy, by making an incision in the mesian line of the perinæum, in the manner of Allarton's operation for stone, the object being to cut across the nervous plexuses and irritable parts of the neck of the bladder. (Prof. Fergusson, p. 209.)

Oxalate of Lime Deposit.—When examining urine, microscopically, which contains oxalate of lime, it is possible that the crystals may be obscured by opaque

urates. When such is the case, they must first be dissolved out by liquor potassæ, or they may very much deceive you, by leading you to suppose that there is very little oxalate of lime, when it is present in great abundance. (p. 127.)

Paracentesis Scroti.—In the advanced stage of ascites, the continued pressure of the water sometimes breaks down or elongates the fibrous and cellular tissues, about the cord, so as to open a communication between the abdomen and the tunica vaginalis, and enormously distend the scrotum. In such cases, where paracentesis is required, although tapping the abdomen is not dangerous, yet tapping the scrotum is much more simple and effectual. (Mr. F. C. Skey, p. 213.)

Perinæal Fistula.—These are sometimes very troublesome to heal. If the actual cautery fail, the injection of acetum lyttæ twice a week will often procure perfect closure. (Mr. Lloyd, p. 209.)

Phymosis.—*Temporary Contraction* usually depends upon the swelling connected with inflammation, the irritation of gonorrheal discharge, sores, or warty excrescences. Now, instead of slitting up the prepuce as used to be the fashion, you should make the patient inject some black wash, three or four times a day, and live quietly. Under this treatment the contraction, if temporary, will soon disappear. The only case of this kind requiring operation (and it is very rare), is where the warty excrescences within the prepuce are so large and numerous, as to resist other remedial agents.

Permanent Phymosis depends upon contraction of the internal lining membrane, generally from the cicatrization of sores, or it may be from a gradual thickening of the mucous membrane. The simplest method of treating these cases is, undoubtedly, by slitting up the prepuce, but this is a very clumsy, unsightly operation: instead of depriving the glans of its proper covering, it is better to remove no more than a ring at the orifice by a pair of scissors; then draw back the outer skin so as to expose the inner membrane. This must be divided on each side, the flaps turned backwards, and stitched to the cut edge of the skin. This is sometimes necessary in very old people, and although it may appear rather a formidable operation at such a time of life, you must recollect, that you may take liberties with the trunk of the body in old age, which would not be warrantable on the extremities. In the lower limbs, especially, of old people, you should as far as possible avoid even the slightest incision, while operations of considerable importance may be performed, if on the trunk, with a favourable prognosis. (Prof. Syme, p. 190.)

In *congenital phymosis*, the skin is more, and the mucous membrane is less, involved than is generally supposed, and the contracted portion is confined to the margin of the preputial orifice,—the mucous membrane is undoubtedly more implicated than the skin, and therefore requires further division. For this purpose, with a pair of blunt scissors, divide the prepuce to the distance of a quarter of an inch on each side of the penis; the prepuce must then be retracted to the extent allowed by the incision, which will by this be brought quite external, enclosing between their lips an uncut layer of mucous membrane. This must be divided on each side in a similar manner, and the prepuce then entirely retracted. Instead of two incisions, three may sometimes be preferable, and they should then be made equidistant from each other. (Mr. F. Jordan, p. 189.)

Stricture of the Urethra.—In the treatment of complicated cases by dilatation, you must use wax and flexible bougies until you can pass a No. 5 or 6; you may then carry on the treatment with metallic sounds, but if used at an earlier period, you may produce much mischief with them. If it becomes evident that dilatation alone will not succeed, then you must have recourse to potassa fusa, but only as an adjunct to dilatation. (Mr. H. Smith, p. 198)

In the employment of dilatation, the golden rule which must guide us, both in regard to the extent it may be carried at the time, and the length of interval which is to elapse between each repetition of it, is to exercise just so much pressure and dilating power as can be exerted without producing pain or uneasiness, or more than slight irritation, and not to repeat the process until any excitement produced by the previous catheterism has completely subsided. The fulfilment of these indications will conduce in the long run the most quickly and safely to a *successful* result. (Mr. H. Thompson, p. 194.)

The method which M. Maisonneuve adopts for their radical and instantaneous cure

is that by internal division. When very contracted, he commences by passing a very fine thread-like bougie into the bladder,—this will require great tact and perseverance: another larger bougie is then articulated to the end of this, and pushed forwards, so that the first bougie becomes coiled up in the bladder; when this is thoroughly in the stricture it must be withdrawn, and another filiform bougie passed, to which is attached the cutting instrument of Frère Come. When this is fairly in the stricture, you must unsheathe the bistoury and withdraw the instrument, cutting through all resistance. The patient generally gets well in fourteen days. As to the possibility of relapses, nothing at present can be affirmed,—it is a question to be judged of hereafter. This method of treatment has been the subject of much discussion before the Surgical Society of Paris; the result of this shows that dilatation is still the best and safest plan, and that the cases are very few requiring incision. If a patient can bear with tolerable ease a moderate stricture, he had better do so than be operated on, for experience shows it is not free from danger, however practised. (Mr. W. Acton, p. 206.)

Cauterization of.—First coat the end of a cat-gut bougie with nitrate of silver, or you may coat it with potassa fusa if you grease the end of the bougie slightly before dipping it into the fused potash; then pass a full-sized straight catheter, with the end open, down to the stricture,—introduce the armed bougie through this, and pass it into the stricture by gently rotating it, until it has passed to the extent desired. (Mr. J. Z. Laurence, p. 205.)

Supra-Renal Capsules, *Disease of.*—We can never give any other than an unfavourable prognosis,—no recovery from true bronzing of the skin has ever been recorded; but as we believe that the changes which the supra-renal bodies undergo, are allied to inflammation, we should expect the most benefit from mercury, in very small doses, or the use of iodide of potassium,—the patient's strength being meanwhile supported by a nutritious, but non-stimulating diet. (Mr. J. Hutchinson, p. 129.

Urinary Fistula.—In a great number of cases, nothing else is required than to dilate fully the urethra, and the fistulæ will heal of themselves; there need be no meddling with them, the less they are touched the better. But in weak constitutions, or when the fistula passes through much indurated tissue, we must improve the general health by good diet, tonics, and cod-liver oil; and, locally, we must stimulate the walls of the fistula, so as to bring about adhesion of opposing surfaces, by applying a strong tincture of cantharides, by means of a camel-hair pencil, or by touching with a probe coated with nitrate of silver. If these fail, lay them open, so that they may heal up soundly from the bottom. (Dr. Henry Thompson, p. 196.)

AFFECTIONS OF THE SKIN, &c.

Cutaneous Affections.—When associated with the cancerous diathesis, are best treated by creasote made into pills with liquorice powder. (p. 236.)

Eczema.—The value of cod-liver oil in this obstinate disease is now almost universally conceded; it should be used in conjunction with other remedies. (p. 236.)

Erysipelas.—Apply a solution of gutta percha in naphtha, and over this place thin gutta percha tissue; it acts by exclusion of air. This holds firmly for from three to five days, and may then be readily taken off, if wished, as a simple plaster. You may keep it in a small tin pot, having a lid which screws on to prevent evaporation, and when wished to be used it may be warmed and applied with the finger. (Dr. G. Hamilton, p. 226.)

Itch, *Rapid Treatment of.*—Dissolve 12 grammes of the chloride of sulphur in 100 grammes of the sulphuret of carbon, and apply this rapidly by means of a large brush to the whole surface. The patient must be quite naked in a well ventilated room, and means taken to prevent the fumes being inhaled. A bath on alternate days will complete the treatment. (MM. Dusard and Pillon, p. 233.)

Phagedenic Ulceration.—When situated upon an extremity, and the sore can be well exposed, try constant irrigation. You must have a reservoir above the

bed filled with lukewarm water, to which a little chloride of lime or soda has been added as a preventative of smell. Then by means of an elastic tube a stream must be kept continually flowing over the sore. By this means all particles of discharge, &c., are washed away as soon as formed, and a speedy arrest of morbid action is secured; of course this is based on the supposition that phagedenic action is a process of local contagion, the *materies morbi* by which the ulcer spreads being its own pus. (Mr. Cock, p. 233.)

Porrigo.—The treatment now in vogue for this affection is the iodide of lead ointment and alkaline lotions, with the internal use of the iodide of arsenic. (p. 236.)

Porrigo Decalvans.—Shave the head every four days, wash night and morning with soft soap and water, and then rub in this ointment:—℞. Axungiæ recent. ℥j.; creosot. ♏x.; ol. limonis q. s. M. The following mixture must be given at the same time and persevered in until the case is complete:—℞. Potassii iodid. gr. v.; liq. potassæ ʒiss.; tinct. card. co. ʒi.; aquæ ℥vijss. M. Coch. mng. ter quotidie sumend. (Mr. J. Burton, p. 228.)

Scalp, *Wounds of.*—In spite of any treatment, erysipelas too commonly comes on about the third or fourth day; whenever such does happen, the tonic treatment by quinine, steel, and wine is the best. (Mr. F. C. Skey, p. 235.)

Sinuses.—When chronic and not inflammatory, you may often cure very troublesome cases by the application of strong nitric acid along the entire length of the sinus. This may be done by charging a fine glass tube with the acid and carrying it to the bottom of the sinus, then discharging it along the whole tract as the tube is withdrawn. If there by any redness or inflammation present, the application will generally fail. (Mr. F. C. Skey, p. 239.)

Small-Pox.—In confluent variola, as soon as the eruption is complete, the greatest benefit may be derived from a few grains of Dover's powder, given every night. (Dr. Cookworthy, p. 308.)

Prevention of Pitting in.—Dr. Stokes, and Dr. Graves of Dublin, have recommended painting the face with a solution of gutta percha in chloroform. It should be applied immediately before complete maturation. The increase of swelling after this time is moderate, and not such as to give rise to much pain, tension, or inconvenience. (Dr. J. Wallace, p. 228.)

Sycosis.—If a regular course of arsenic fails to cure, the greatest advantage may sometimes be derived from cod-liver oil, if persevered with for a sufficient length of time. (Mr. T. Hunt, p. 227.)

Never shave, the beard ought to be cut with scissors. Locally apply emollient fomentations, cataplasms of the fecule of potato. When the inflammatory stage has passed, we may employ an ointment of the iodide of sulphur, ʒss. to ℥i. of lard, every night, and an alkaline solution every morning. (M. Chausit, p. 227.)

By painting daily with tinct. iodin. co., the most obstinate and chronic cases may be got rid of. (p. 228.)

Ulcers, *Cancerous.*—From a trial of a great variety of applications, the following lotion seems to answer perhaps the best—℞. Plumbi acet. ℈ij. ad ʒi.; creosoti ♏xl. ad ʒj.; aq. fluvial. ℥xij. M. Ft. lot. (Mr. J. Valentine, p. 239.)

Indolent Ulcers.—Opium in one grain doses has lost none of its *prestige* in these cases, especially when situated on the lower extremities. (Mr. F. C. Skey, p. 236.)

Apply a lotion, consisting of half a drachm of the tincture of catechu to a pint of the decoction of oak bark. (Mr. Savory, p. 238.)

Of the Leg, Chronic.—There is no treatment comparable to the internal exhibition of 5 grains of the pil. saponis co., night and morning. Opium is the best regenerator of the defective structure; in a few days a large callous ash-coloured ulcer of years' standing, will put on a fine healthy granulating appearance, not owing to the sedative effect of the opium, but its regenerating power. (Mr. F. C. Skey, 236.)

Wounds.—Glycerine is a capital application to wounds of almost any description, and especially if sloughy. It is very clean, soft, and comfortable to the patient, and it promotes cicatrization. The manner of applying it is by simply dipping a piece of lint into it, and placing it over the whole of the wound. (M. Demarquay, p. 238.)

AFFECTIONS OF THE BONES AND JOINTS.

CARPAL BONES, *Excision of.*—In cases of partial disease of the wrist-joint, in place of amputation of the forearm, excision of the diseased bones is sometimes preferable, as by this means the disease is equally removed, and a very useful hand preserved. It should be conjoined with the use of cod-liver oil and tonics, &c., especially in strumous cases. (Mr. Cock, p. 145.)

CARTILAGE BONES, *Ulceration of.*—This disease is hardly ever met with in the ball and socket joints, it is nearly entirely confined to the hinge-joints. The symptoms are deep-seated pain, generally increased during the night, uneasy sensations in the next joint, or even the whole limb, more or less swelling of a firm unyielding kind confined to the seat of the articulation. These symptoms may continue for weeks or months, and terminate either in recovery with more or less stiffness of the joint, or in suppuration with caries. The treatment has generally been by leeches, fomentations, blisters, caustic, issues, but all these will often fail. The only remedy which may be depended upon with perfect confidence, is the actual cautery, which may be drawn crossways over the joint. The result is often surprising and satisfactory. (Prof. Syme, p. 298.)

CONTRACTIONS OF THE KNEE.—When from nervous irritation, as a symptom of general hysteria, there will be no evidence of disease within the joint; in these cases put the patient under the influence of chloroform, and the limb will almost of its own accord fall into the straight position, in which it must be retained by means of a long splint. When depending on spasmodic contraction of the hamstrings from irritation of the nerves at some distance, as by the pressure of fæces, &c., give powerful cathartics to clear out the bowels. When from subacute inflammation within the joint, it will generally yield without the necessity of extending force, by the application of leeches, blisters, and other remedies to reduce the inflammatory action, as small doses of mercury and morphia, &c. When from consolidation of the ligamentous structures in and around the joint, you will generally succeed by gradual and forcible extension. Never mind the snaps and cracks which may be heard; there is no fear, if you only take care that there is no inflammatory action going on in the joint at the time. (Mr. J. Erichsen, pp. 137 and 160.)

FRACTURES OF THE LEG.—When simple and transverse without displacement, whether one or both bones are broken, encircle the limb with a simple pillow made of soft flock, and bind it to the leg with straps of broad tape or pieces of roller; this will form a soft uniform wall around the limb, which will be superior to any number of splints. (Mr. F. C. Skey, p. 147.)

HOUSEMAID'S KNEE.—There is no form which this disease assumes that is not amenable to treatment, by means of a single thread of silk passed through its centre. Sooner or later (from two to ten or fifteen days), suppuration in the cyst will follow, and the case assumes the form and character of an ordinary abscess, which the lancet will effectually relieve. (Mr. F. C. Skey, p. 147.)

KNEE-JOINT, *Diseases of.*—In obstinate cases, which defy the usual forms of treatment, local depletion by means of leeches or cupping is injurious. You will find the most benefit from the inunction of mercurial ointment, with one-third its quantity of fluid extract of opium, followed by perfect rest in the recumbent position, and the firm application of a flannel roller. (Mr. F. C. Skey, p. 137.)

During the acute inflammatory stage, keep up counter irritation by a *repetition* of caustic issues made with potassa fusa; this method is preferable to keeping an issue open by peas, as there is greater advantage to be gained by the primary burning than the subsequent suppuration. If the joint be obliterated, and the disease entirely subdued, you may straighten the limb by forcibly breaking through the anchylosing bands; this may be accompanied by a loud crack, but there is no danger, they generally do very well. (Mr. S. Solly, p. 144.)

Excision of.—The following two suggestions may be worthy the attention of practical surgeons in the management of these cases. The first is the division of *the hamstring tendons*, so as to prevent the displacement of the bones, which is *so troublesome in the* after treatment. The second is the making of an opening *into the popliteal space* for the direct escape of pus, to prevent it bagging and *burrowing.* (Mr. J. Hutchinson, p. 145.)

To Mr. Hutchinson's suggestions as regards the operation, we may add another, viz., that the limb be put up in one of Ester's swinging fracture apparatus, having an opening at the posterior part through which pus may escape, and the wound be dressed without disturbing the limb. (Dr. O. Vitalis, p. 308.)

Necrosis.—Whenever tendons pass over newly developing bone, it is of the greatest importance that union should be averted between them, by commencing passive motion as soon as it may safely be done. (Mr. S. Solly, Lancet, Jan. 5, 1856, p. 6.)

Painful Stumps.—From considerable experience we know that painful stumps are much more common after flap amputations than circular amputations; in the latter the nerves are cut off short and buried in the stump, while, in long flaps, the nerves are cut obliquely, and are more likely to be pressed upon. When very troublesome you must dissect out the bulbous extremity. (Mr. E. Stanley, p. 147.)

Paralytic Deformities.—In the treatment of these cases you must remove existing deformity by tenotomy and mechanical appliances, and subsequently compensate for the paralysis by mechanical support. When the muscles of the leg are paralysed, those about the hip joint are not involved, and may be made available in the effort of progression by properly adapting mechanical supports to the thigh, and rendering the knee-joint immovable when in the erect position. (Mr. W. Adams, p. 152.)

Shoulder Joint, *Disease of*.—In a case which required excision of the head of the humerus, Mr. Syme enlarged an opening existing on the inner side of the shoulder; he then, by means of a probe-pointed bistoury, guided on his finger, detached the connections of the spinati muscles, and pushing the arm upwards, protruded the head of the bone, which was then removed. We may remark that ball and socket joints are most liable to chronic inflammation, suppuration, and caries; while the hinge-joints are more subject to ulceration of the cartilages, and gelatinous degeneration of the synovial membranes. But the shoulder joint is apt to suffer from disease entirely peculiar to itself; one is, removal of the osseous substance by absorption, so that a cavity is left in place of the round extremity, from inflammation affecting the head of the humerus, independently of the scapula. Again, excessive action of the biceps will produce an injurious effect upon its osseous attachments, leading to exfoliation of the coracoid process, and disease of the humerus, along which the long head of the muscle passes. (Prof. Syme, p. 134.)

Talipes Equinus.—Mechanical extension should be commenced on the third day after the division of the tendon; the foot must be bandaged and placed in a Scarpa's shoe, or that modified by Mr. Adams; the rate of extension in a healthy infant should be such as to obtain the full length required in a fortnight, if practicable; in adults and paralytic limbs it will require a longer time. Our object must be rather to regulate the length of new tendon than to elongate or stretch the new material; care must be taken to carry the foot beyond the right angle with the leg, according to age and comparison with the healthy foot. During the latter period of treatment, passive exercise must be employed to prevent stiffness of the joint. When much resistance has to be overcome, most good is done by constant and regular, rather than intermitting mechanical extension. In ordinary cases, flexion and extension may be used for a quarter of an hour or more each day. (Mr. W. Adams, p. 158.)

Tenotomy.—To perform this operation cleanly and readily, you must use a knife with a cutting edge considerably longer than the breadth of the tendon. You must place the patient on the stomach, and let an assistant put the tendon on the stretch, by endeavouring to flex the foot, then introduce the tenotomy knife with its flat surface parallel with the tendon and close to its edge, but rather towards the posterior surface, pass it obliquely downwards, keeping the point close to the tendon, and then by depressing the handle you carry it beneath the tendon; this done, turn the cutting edge towards the tendon and divide it transversely; the division is indicated by a sudden audible snap and the yielding of the joint. In infants direct pressure of a sharp knife is often sufficient; but in adults a little cutting manipulation is required. On withdrawing the knife apply instantly a compress of lint plaster and bandage. Some surgeons recommend the tendo

Achillis to be divided by passing the knife flatwise posteriorly between the tendon and the skin, and then cutting from behind forwards; but the other method described is perhaps the better. (Mr. W. Adams, p. 156.)

Tendons, *Reunion of.*—The newly-formed connective tissue, or new tendon, gradually assumes the character of the old tendon, so perfectly that no difference can be perceived; it may be formed to the extent of two inches, and it is through the agency of this that the required elongation is maintained. (Mr. W. Adams, p. 155.)

VENEREAL AFFECTIONS.

Copaiba, *Substitute for.*—Wood oil, or Gurjun Balsam, has been recently imported in considerable quantities from Burmah, and sold for copaiba. Dr. O'Shaughnessy says that it is nearly equally efficient with copaiba in the treatment of disease. It may be given in doses of from ten to thirty drops. (Mr. D. Handbury, p. 244.)

Gonorrhœa.—M. Ricord employs large doses of cubebs in powder, or copaiba capsules, together with his favourite injection, consisting of 10 grains of the subnitrate of bismuth to 6 ounces of water. In London, the capsules, with lead injections, rarely fail to cure when given after the inflammatory stage has passed. If the disease should continue in a subacute form, examine the urine, it will most likely contain mucus, and if it do, there will be some irritation of the bladder or prostate: you must then lay aside both the capsules and the injection for a time, and give the extract of the spruce fir as follows:—℞. Ext. abietis nigr. inspiss. ʒij.; magnes. carb. q. s. M. ft. pil. xxx.; cap. i. vel ij., bis vel ter in die. If you find it necessary to give opium by the rectum, it will be most convenient in the form of a suppository, and this will be far better to introduce if made of the butter of the cacao-nut, than if made of Spanish soap. ℞. Pulv. opii gr. i.; buty. cacaonis gr. x. M. Ft. supposit.; hac nocte utend. (Mr. W. Acton, p. 245.)

Psoriasis, *Syphilitic.*—Iodide of potassium and sarsaparilla will generally cure the disease for a time; but as a matter of certainty and safety, 5 grains of Plummer's pill should be given night and morning, though not necessarily to touch the mouth. (Mr. E. Stanley, p. 236.)

Ptyalism.—When very severe, give 15 grains of chlorate of potash thrice daily, in an ounce of water. (Mr. Hutchinson, p. 242.)

Syphilis.—We believe that there are a plurality of poisons in this disease depending upon the constitution of the person affected, and not on the source of the infection. For the treatment of venereal sores, mercury in ninety-nine cases out of one hundred is unnecessary. We may say that there are three different kinds of venereal sores: first, the common venereal sore, where mercury is quite inadmissible; second, the phagedenic sore, where mercury is positively injurious; third, the true syphilitic sore, dusky, cartilaginous, indurated, here mercury is useful, and it is the only case in which it is admissible, but it is very rare comparatively. M. Ricord, of Paris, entirely and fully coincides with these views. In the exhibition of mercury, it is a bad plan to push it where it seems to have little or no effect. It would be much better to intermit its use for a few days, and when resumed, it will be far more likely to produce a beneficial impression. When pushed to salivation, it too often produces a long train of complaints, which last as long as life. (Mr. F. C. Skey, p. 239.)

Ulcers, *Spreading and Sloughing.*—The best of all the usual remedies for such affections is the external application of the "Friar's Balsam," (tinct. benzoin co.) (Mr. Stanley, p. 236.)

AFFECTIONS OF THE EYE AND EAR.

Artificial Membrana Tympani, *New Form of.*—Make a perfect model of the *meatus in wood:* its end should be flat, and cut obliquely. This, previously oile*d should be dipped* six or eight times into a solution of gutta percha in chlorofo

until a film of the thickness of oiled silk is formed, which must then be peeled off the model in one unbroken piece, and if properly made it will fit the meatus comfortably, and may be readily removed and replaced when necessary to clean it. It should not be allowed to protrude, but cut so as to lie entirely within the meatus, (Mr. T. Westropp, p. 224.)

Cataract, *Extraction of*.—The short broad knife has the disadvantage of not retaining the aqueous humour so completely and so readily as a long narrow blade, which travels along with great ease without the force and difficulty sometimes experienced in cutting with the short-bladed knife. (Mr. G. Critchett, p. 219.)

Collyrium *of Chloride of Zinc*, one grain to the ounce, is very valuable in thickened or vascular conjunctiva, which may be considered to be a sort of "gleet of the eye." (Mr. G. Critchett, p. 224.)

Extirpation of the Eye.—Divide the conjunctiva as close as possible round the margin of the cornea, then cut through the external rectus muscle close to the sclerotic, then the superior and inferior recti, and the obliqui; then draw the globe forwards and divide the optic nerve, turn the globe out of the orbit, and complete the operation by dividing the internal rectus. It is readily done, there is no hemorrhage, no local or constitutional disturbance, and the cure is speedy and complete. It may be performed, 1st, where there is extensive staphyloma of the globe, and in such cases it is a far milder operation than that of opening the globe. 2nd, where a foreign body is suspected within the globe. 3rd, where there is extensive adhesion between the globe and the lids. 4th, where there is frequently repeated acute inflammation, preventing the use of the other eye. 5th, where there is deep-seated disease of the globe, threatening the loss of the other eye. (Mr. G. Critchett, p. 216.)

Granular Conjunctiva.—We have no hesitation in recommending very strongly, as a local application to the granular surface, the solution of diacetate of lead; it should not contain any carbonate of lead, which is apt to be deposited from it on exposure to the air. It may be applied not oftener than once in two days by means of a camel-hair brush of moderate size. (Dr. R. Hamilton and Mr. B. Bell, p. 214.)

Iodine Adhesive paint.—℞. Spt. vini rect. ʒij.; spt. æther. nit. ʒiv.; mastic. ʒss.; iodinii, ad saturat. This is very useful where iodine is required about the eyes, as it does not run on the skin.—(Moorfields Ophthalmic Hospital, p. 292.)

Ophthalmia.—In strumous ophthalmia quinine is the chief remedy to rely upon; in purulent ophthalmia, the careful use of nitrate of silver; in corneitis, iron is most valuable, and where the sclerotic is involved, cinchona, alkalies, and colchicum. (p. 215.)

MIDWIFERY, AND THE DISEASES OF WOMEN.

Abortion.—When nervous excitement prevails, with intermitting uterine pain, a full opiate is of great service. Dr. Fleetwood Churchill has given the cannabis Indica with good effect. As astringents, the acetate of lead or gallic acid with opium are the best. The patient must be kept cool, and in the horizontal position, for standing greatly adds to the probabilities of abortion. Keep the bowels open with conf. senna, or potass. bitart.; castor oil irritates the uterus and ought not to be given. When abortion has threatened at a catamenial period, great care ought to be taken as the next monthly period comes round, to avoid every cause of irritation, and keep perfectly quiet.

In severe cases, where all the more powerful astringents have been tried in vain, the vagina must be plugged firmly with lint or sponge; if this do not arrest the hemorrhage, the membrane should be ruptured to excite expulsive action of the uterus. If the bag of the early ovum can be felt with the finger in the cervix uteri, it can generally be separated by careful manipulation. Dr. Simpson recommends the introduction of a sponge pessary, to dilate the os and cervix, but if you do use the sponge, you must not allow it to remain long enough to become fœtid. Galvanism has been suggested by Dr. Robert Barnes. A drastic cathartic will *often* complete the expulsion of an ovum in a very satisfactory manner. (Dr. *Tyler Smith*, p. 255.)

Amenorrhœa.—Dr. Mikschik says he has derived great advantage from the tincture of iodine, as an emmenagogue, applied daily to the os uteri. (p. 296.)

Encephaloid Cancer of the Breast.—This is the form of malignant disease which is the most certain to return after removal; yet, notwithstanding this, it is often our duty to operate even in the later stages of the disease, not with the hope of saving life, but of prolonging life, by removing a bleeding, ulcerating, sloughing, loathsome mass, which makes life wretched. If you see the disease sufficiently early, before the neighbouring glands are implicated, you are bound to operate in all cases; lose no time, remove enough, and especially the skin, for this is the structure which is generally first attacked. When the disease returns, you must make the lower incision the first: take great care that you dissect the pectoral muscle cleanly,—and in some cases it will be necessary to remove a portion of it also. While you ought almost invariably to operate in this kind of cancer, there are other kinds where you ought not to operate, and these are cases of scirrhous, stony cancer, which have advanced slowly and silently for years, without much annoyance on the part of the patient, until the glands in the axilla are implicated, and the disease is firmly attached to the pectoral muscle. You will do more harm than good if you interfere in these cases. (Mr. S. Solly, p. 46.)

Labour, *Induction of*.—The uterine douche possesses many advantages over ergot—1st. It will excite contractions; 2nd. It does not endanger either the mother or the child; 3rd. Its action can be better regulated according to the effect required;—and 4th. It may be employed at the commencement of labour, and in all degrees of dilatation of the neck. (Dr. Bourgeois, p. 262.)

Menorrhagia.—When unconnected with organic disease, it may be readily checked by infusion of digitalis. If there be organic disease, it will control the discharge, but its effects will not be permanent. (Mr. W. H. Dickenson, p. 265.)

Molar Pregnancy.—If the life of the mother should be threatened, the ovum should be detached by the catheter or the uterine sound without hesitation. Ergot of rye must also be given to excite contractions, but in ordinary cases, as in simple abortions, we must wait until the ovum can be reached with the finger before we attempt to remove it. In hydatid degeneration, the treatment may be more positive—give ergot, and if the os uteri be dilatable, introduce the hand to detach and remove the hydatid mass. (Dr. Tyler Smith, p. 270.)

Nausea and Vomiting of Pregnancy.—You must first try to get the secretions into a healthy state. One of the most serviceable remedies in these cases is the infusion of calumba with soda and hydrocyanic acid, or you may give this in an effervescing form with citric acid,—in some patients opium answers better, and perhaps the solution of the bimeconate of morphia is the best form in which an opiate can be given. Salicine, in doses of three to five grains, three times a day, is a valuable medicine. Creasote, in one or two drop doses made into pills with bread, is an efficient remedy. Professor Simpson particularly recommends the nitrate of cerium in doses of one to two grains in water, and also the inhalation of the vapour of laudanum. (Dr. Tyler Smith, p. 251.)

Os and Cervix Uteri, *Inflammation of*.—The indications of local treatment are to allay irritation and restore tone; for this purpose, where there is much heat, pain, or discharge, the liq. plumbi diacet. in decoct. papaver. forms one of the best injections. It must be retained as long as possible, by making the patient lie upon her back with her heels drawn up to the nates; suppositories of diacetate of lead and extract of conium are also very valuable. With some patients the warm bath is the only thing which gives relief, but the sooner she can gradually come to the use of cold water the better, and especially sea-bathing. (Dr. Rigby, p. 248.)

Ovarian Cysts.—The injection of tincture of iodine after paracentesis has been very encouraging in its results, and is deserving of more general confidence. (Mr. I. B. Brown, 238.)

Paracentesis Abdominis.—Use neither pressure nor bandage, allow as much of the fluid to flow out gradually as the natural elasticity of the cyst or abdominal parietes will expel; when the flow has quite ceased of itself, close up the orifice, keeping the patient recumbent. (Dr. Corrigan, p. 272.)

Pregnancy, *Diagnosis of, from Abdominal Tumours*.—By applying the hand, the tumour at first feels soft and ill-defined, but by pressure it rapidly assumes

a tense rounded form, becoming firm and resisting. This may be taken as a trustworthy characteristic of a pregnant uterus, since there is no other tumour which possesses any power of altering its form when irritated by palpation. (Dr. Oldham, p. 270.)

Tartar, Emetic, *in Obstetric Practice.*—In the early stages of primiparæ, where the os uteri is hard, undilatable, and fails to yield to time and the ordinary remedies, one grain of tartar emetic with six ounces of soap-water may be given by the rectum with very beneficial and relaxing effects. It is particularly applicable for the robust and plethoric. (Dr. J. Young, p. 273.)

Turning, *Use of Forceps.*—In all cases where the head is detained after the delivery of the body, the use of the forceps is greatly preferable to pulling by the body or neck of the child. They may be applied easier than in vertex presentation, because you have the head fixed and know its exact position. The extracting force is certainly safer, and the compression of the head may be more effectually accomplished than by the irregular distorted pelvis. (Mr. A. Morton, p. 263.)

MISCELLANEA.

Blister.—A very ready way of raising a blister rapidly in cases of emergency, is by dipping an iron spoon into boiling water, and then applying it to the skin. (Mr. Simon, Lancet, Nov. 17, 1855, p. 460.)

Chloroform, *Formulæ for administering.*—It may be mixed with a little oil of sweet almonds, and rubbed up with gum arabic; or without mixing with oil, it may be added to equal parts of sugar and gum, and rubbed up gradually with water. Again, it may be mixed with yolk of egg and syrup. (M. Dannecy, p. 283.)

Muriate of Ammonia, *Internally.*—It may be given in many chronic inflammatory diseases, as chronic bronchitis, enlargement of the lymphatic glands, chronic skin diseases, and chronic rheumatism. Dr. Watson testifies to its efficacy in certain forms of facial neuralgia, nervous headache, toothache, and sciatica. Its action is sometimes remarkably beneficial; when the secretion from the pulmonary mucous membrane is tough and tenacious, it speedily becomes altered in quality and consistence. In chronic periosteal inflammation, having a syphilitic origin, it seldoms fails to give relief. In indolent bubo a strong solution (℥ij. to ℥ i.) may be kept constantly applied, and five to ten grains may be given internally three or four times a day. In neuralgic affections, Dr. Ebden has given from 25 to 30 grains for a dose. (Dr. A. Lindsay, p. 288.)

New Trivalve Speculum.—This instrument will be found to possess many advantages over those in ordinary use. It is constructed on the same plan as M. Ricord's bivalve speculum, but has three divergent blades; it allows of extensive dilating power within the rectum, with as little bulk as possible opposite the grasp of the sphincter; yet there is quite sufficient space to admit the finger, instruments, or the application of nitric acid, &c. (Mr. S. A. Lane, p. 247.)

Phosphate of Lime.—This substance may be rendered much more soluble, and therefore useful, by uniting it with carbonate of lime in the following proportions; phosphate of lime 4 grammes, carbonate of lime 8 grammes; sugar of milk 12 grammes. (M. Kuchenmeister, p. 284.)

Poisoning.—The plan of the Dublin College requiring druggists to keep all dangerous preparations in square or angular bottles, and the others in round bottles, would prevent many accidental mistakes. (p. 308.)

By Aconite.—This has not unfrequently been mistaken and eaten for horse-radish; it may be known by the acid taste of the aconite parings, and the pinkish colour which they assume when exposed to the air. Cases of poisoning may be known by the symptoms, which are very characteristic, and by the extremely poisonous effects of the matters from the stomach on small animals. The best treatment is the free exhibition of animal charcoal mixed with water, followed by a zinc emetic, *and then* by brandy and ammonia. (Dr. F. Headland, p. 308.)

Strychinine, *Method of Detecting in the Human Body after Death.*—Mr. Rodgers, Lecturer on Chemistry at the St. George's School of Medicine, has published

in '*The Times*' the following process, which has enabled him and Mr. Girdwood "to detect that fearful poison in the blood, liver, tissues, and contents of stomachs of animals poisoned by doses such as those Dr. Taylor administered in the experiments on which he founded his theory promulgated at the late trial, and which has also enabled us to separate the strychnine from the tissues and organs of a dog after the body had been interred twelve months."—"The tissues of the body are rubbed with distilled water in a mortar to a pulp, and then digested, after the addition of a little hydrochloric acid, in an evaporating basin; then strained and evaporated to dryness over a water bath; digest the residue in spirit, filter, and again evaporate to dryness; treat with distilled water, acidulated with a few drops of hydrochloric acid, and filter; add excess of ammonia, and agitate in a tube with chloroform; the strychnine in an impure condition is entirely separated with the chloroform. This chloroform solution is to be carefully separated by a pipette, and poured into a small dish, and evaporated to dryness; the residue is moistened with concentrated sulphuric acid, and heated over a water bath for half an hour; water is then added, and excess of ammonia—again agitated with chloroform, and the strychnine will be again separated by the chloroform, now in a state of sufficient purity for testing, which can be done by evaporating a few drops on a piece of white porcelain, adding a drop of strong sulphuric acid, a minute crystal of bichromate of potash being added in the usual way; or the elegant mode proposed by Dr. Letheby can be adopted." (Mr. J. E. D. Rodgers, and G. P. Girdwood, "*Times*," June 13, 1856.)

Naphthalidam, an organic base derived from napthalin, will produce an exactly similar purple colour when brought into contact with a mixture of bichromate of potash and oil of vitriol, as strychnia. (Mr. Simpson, p. 309.)

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